RESIDENT OPINION SURVEYS AS A CONTRIBUTION TO IMPROVED HOUSING STOCK MANAGEMENT

Anna OSTAŃSKA*

*PhD Eng.; Lublin University of Technology, Faculty of Civil Engineering and Architecture, ul. Nadbystrzycka 40, 20-618 Lublin, Poland
E-mail address: a.ostanska@pollub.pl

Received: 7.12.2015; Revised: 10.12.2015; Accepted: 18.04.2016

Abstract
The aim of research was to evaluate the quality of living conditions in selected prefabricated housing estates built in 1978–1986 in Lublin. The focus was on assessing how this built environment corresponds to current needs of the residents, and on setting priorities for rehabilitation measures in those areas. The method of collecting input was an opinion survey based on an original questionnaire, conducted in the form of direct interview. Statistical analysis of the questionnaires allowed the researcher to define a set of improvement measures most welcome by the residents. Interestingly, a considerable number of residents declared to participate in the rehabilitation projects by contributing their labor free of charge or by paying certain sums. The proposed way of asking residents on their view on the housing stock deficiencies provides a useful input for facility management plans. Surveys conducted periodically, as consecutive maintenance and improvement measures are taken, are argued to provide guidelines for improvement of studied estates. The proposed method of assessing the built environment can be used in planning rehabilitation projects for any type of housing estates.

Keywords: Built environment; Housing estates; Prefabricated housing stock; Rehabilitation; Residents opinion survey.

1. INTRODUCTION
Most of the Polish housing estates of multifamily buildings were erected in nineteen-sixties to early nineteen-nineties, in the times of mass housing programs and industrialized construction based on precast concrete panels. Industrialization of house building was a general trend in Europe in those times of population growth and need for affordable housing. Numerous prefabricated systems were developed, implemented, refined, and implemented again to build faster and cheaper, and to provide better living conditions for as many people as possible.

Despite relatively young age of this housing stock
and its structural soundness, the prefabricated estates are generally becoming problematic resources. This can be observed throughout Eastern and Western Europe, though reasons for and speed of the estates’ decline vary country to country. They depend strongly on the estate’s location in the city, asset ownership structure, quality of initial urban design, demographic and socio-economic processes in the neighborhood. In extreme cases, accumulation of problems leads to demolition [1, 2], but more often the estates are subject to urban renewal measures that go far beyond improving condition of material assets [3, 4, 5].

In Poland, the prefabricated multifamily buildings themselves would not qualify for urgent rehabilitation measures. Demolition does not come in question, as the apartments are still in demand and depopulation is not an issue yet. The “prefab stock” is generally seen as “a characteristic feature of Polish cities (...) aesthetically inferior but in good technical condition; the material infrastructure and public spaces that accompany it are just bearable, but availability of local amenities and quality of green areas are more than adequate” [6].

Most of the buildings in prefabricated housing estates have already been modernized to some extent with the focus on reducing their demand for heating. The works consisted in insulating the envelope and improvements to heating systems. However, this certainly did not solve all technical issues, and did not address functional deficiencies and social problems of the neighborhoods – they slowly accumulate [7, 8].

Public statistics do not offer insight into the problems of this particular type of assets nor particular neighborhoods. Moreover, the Polish prefabricated housing stock is just becoming an object of systematic research on quality of built environment [3, 9, 10]. Therefore, while planning any improvement to the prefabricated estates, one needs to start with individual and thorough investigations conducted at least on the scale of a whole functionally integral part of a housing estate, as the living environment is more than the dwelling itself. A reliable diagnosis would cover the building’s technical deficiencies, deficiencies of the estate as living environment, as well as the users’ attitudes and needs.

Without the latter, the planner is not able to predict what type of intervention is likely to actually add value [4, 11, 12] – vide surprising effect of the first stages of modernization in shrinking cities of East Germany [5]. The users’ opinions should be surveyed on regular basis, as human needs change over time, and the effects of measures taken so far should be examined. The interviews may be also an opportunity to give the inhabitants the idea of what is possible to be done and what kind of benefits or costs to expect. Action as simple as asking for opinions may also win the users’ support for major and innovative projects such as introducing renewable energy sources; this is a key thing in the case of mixed tenure or private ownership of apartments.

It is worth mentioning that the cases of implementing environmentally-friendly systems are still rare. Despite the fact that the technologies are well established, and that the economies of scale favor large housing estates, there are practically no examples of installing e.g. solar collectors, photovoltaic panels or grey water systems. For instance, the Malopolska region cannot boast such projects at all [4], and Lublin region is not much better with one solar project in Zamosc.

The author claims that a broader view on urban renewal, user involvement, and built environment psychology is needed. The aim of this study is to provide precise criteria of assessing the quality of this special type of built environment, the large prefabricated housing estates that are, and most probably will be, the main feature of Polish cities.

The analysis is illustrated by examples of housing estates in Lublin, that were monitored for about a decade [10], and where the author conducted a series of opinion surveys to capture the change in the inhabitants’ attitudes towards their neighborhood against technical measures taken by the facility manager. The surveys, conducted in the form of direct interviews, were also to arouse the inhabitants’ interest in their surrounding, their impact on decisions on the way it is shaped, and its future development.

2. RESEARCH METHODOLOGY
2.1. The questionnaire

The study was based on a questionnaire. It was constructed according to patterns of sociological surveys [14], enriched by methods and techniques resulting from findings by Sztumski [15] and the feedback from the author’s experience of regular surveys between 2004 and 2014 [16]. The questions concerned:

- the inhabitants’ perception of the deficiencies in infrastructure and amenities in the neighborhood,
- their expectations towards repair and improvement measures,
- their opinion on (or even consciousness of) such measures taken so far,
their attitudes towards participation in the urban renewal actions aimed at raising the quality of living in the area,
- repair and modernization works undertaken individually by them in their apartments.
Additionally, the questionnaires included a set of questions aimed at capturing the state and changes to the neighborhood’s population structure.
Due to the complex and multidisciplinary range actions that can be taken to improve the living quality, the questionnaire was composed of three kinds of sociological questions:
- closed logically and technically with a complete list of answers to choose from, where only one answer can be given for a question (questions on: gender, age, education, migration or scale of participation in the costs of improvement measures),
- semi-open with a complete list of technical solutions to choose from, where the respondents could answer a question by selecting a number of technical solutions (questions on preferred improvement measures, e.g. in energy saving or modernizing public spaces)
- open both logically and technically, where the respondent could give free answers (questions related to works conducted individually in the apartments and views on direct participation in improvement measures).

The questionnaire form contained 29 questions, of which ten questions were closed logically and technically, seventeen were semi-open, and two were open.

2.2. Principle of sampling
In Lublin 18.5 thousand of multifamily residential buildings are located in 27 districts. In the studied time period, from 1978 to 1986, six new districts with prefabricated buildings were built. Although these districts and located in their area large housing estates are interesting in terms of urban planning, now require a comprehensive corrective action for the technical condition of buildings and needs of residents. For this purpose, three representative areas were selected: North Czechow, South Czechow and South Czuby. The author randomly selected a number of multifamily buildings. The respondents were to be adult inhabitants (18 to 80 years old) present in the apartment, and willing to participate in the survey. Only one person from a particular apartment was asked to give answers. The survey provided 42 valid questionnaires (18%) out of the total 229 apartments in the considered buildings.

2.3. The test procedure
The interviews were carried out on 27 and 28 January 2011 (Friday and Saturday), each day in two rounds: 9 a.m. to 2 p.m. and 4 p.m. to 7 p.m. in order to approach all inhabitants regardless of their lifestyle and avoid distortion of survey results. The interviewers (a group of people familiar with the aim and methods of research, instructed and examined prior to collecting answers) went from door to door asking the respondents, adult inhabitants present in the apartment, to participate in the survey. Prior to filling the questionnaire, each respondent was informed on the aims of the survey. Due to the technical character and complexity of the problems raised in the questionnaire, the majority of respondents needed further explanations. As the questionnaires were to be filled in the presence of the interviewers, such explanation was possible. The collected data were then coded, verified and analyzed statistically. The results are presented in the chapters to follow.

3. ANALYSIS OF SURVEY RESULTS
3.1. Population profile
The respondents were classified into four age groups, as indicated in Figure 1. The majority of the residents of the considered buildings were 46÷65 years of age: women and men of this group constituted over 45% of the sample.

![Figure 1. Distribution of respondents according to their age and gender, Lublin, January 2011](image)

3.2. Residents’ opinions and expectations
The results of the survey are summarized in Figures 2-7. The residents generally expressed satisfaction with the functionality of the apartments (60%). If they decided to migrate, the main reason for that would be the too small size of their dwellings (26%). The desti-
nation of such migrations would be another apartment block in some other district of the same city (21%) or an individual house, preferably also in the urbanized area (17%). The senior group (aged over 66) is mostly not interested in moving anywhere, and would not even consider moving to a smaller unit of less stories. The youngest respondents group (18-25) also does not consider moving to smaller buildings.

These results allow the author to conclude that the prefabricated buildings in Lublin are not threatened with depopulation problems yet. However, in the next 10 years this may change: the share of people aged over 65 years is growing [8].

The residents are satisfied with the aesthetics of their place of residence (67%), but they see some space for improvement (Figure 3): modern glass facades combined with energy recovery systems would be welcome by 62%. They would appreciate if their buildings were equipped with elevators taking passengers directly from the ground level (36%), as currently elevators are present only in buildings over 5 stories and they can be accessed only from the first floor level that must be climbed by one flight of stairs. Some of the interviewees (26%) would also like to have their balconies sheltered.

In the field of fixtures and systems in the buildings (Fig. 4), the inhabitants would consider switching to energy efficient lighting (64%). Motion sensor-controlled lighting of staircases would be welcome by 60% (currently the light is automatically on all night after dark or it must be switched on manually and is switched off automatically by a timer). 55% of the interviewees would like to replace the original electrical wiring inside their apartments with a new one, and the same number think that their natural draft ventilation is not efficient and could be replaced with mechanical systems with recuperation.

Figure 2.
The residents’ opinion on reasons for migrations from pref fab housing estates, Lublin, January 2011

Figure 3.
The residents’ opinion on ways of improving the buildings’ aesthetics and functionality, Lublin, January 2011

Figure 4.
The residents’ opinion on the need to modernize the building’s systems, Lublin, January 2011
The highest potential of energy savings is seen in solar collectors and photovoltaic panels (86%) and gray water reuse (71%) and comprehensive thermal insulation (over 30%) (Fig. 5). The “standard” energy saving measures as cladding selected elements of the envelope attract less attention, but this is because thermal insulation has been already applied to the buildings’ facades, and the improvements considered here regard only the deficiencies or needs not satisfied so far.

The buildings and the area were originally equipped with common access facilities. Some of them are still in use: 76% of the interviewees admitted using storage rooms located in the basements, though common access rooms where washing can be hanged to dry are not popular any more. Quite surprisingly, carpet beating racks are still used by 74% of the respondents. As for modern digital services, the internet is more popular among the respondents than cable TV. Corresponding data are shown in Figure 6.

The interviewees were asked to select five out of seventeen technical improvement actions considered most needed, and to declare some form of participation enabling these to be implemented (Fig. 7). Painting staircases was found most important (52%), the second in the line was providing new elevators serving the ground level (50%), then replacing old wiring in the apartments (43%). The last two most popular choices were: providing a new plumbing system (29%) and replacing old windows (24%). Some residents expressed the will to pay additional money (apart from the regular repair fund) for the works they found most urgent: 33% of the interviewees could offer PLN 500, 7% would pay PLN 1000, and 2% – PLN 1500 a year on top of their regular rent.
4. CONCLUSIONS

The survey contributed to better understanding of the current problems of the prefabricated housing stock. Some of them have been addressed by recent repairs or modernization works, however, not in full. The inhabitants think that more can be done to improve their living conditions, and their priorities may be different from the priorities of the facility manager – thus maintaining the client’s satisfaction may call for an interdisciplinary approach.

The majority (60%) of surveyed inhabitants of prefabricated housing estates seem quite satisfied with their homes, and only few (7%) complained about functional deficiencies of their apartments. Most residents observed that the original (mid-eighties) electrical and plumbing systems are tired and need refurbishment. However, according to them, the repair and modernization priorities are as follows:

– improving esthetics of common areas (repainting staircases)
– improving accessibility (elevators accessible from the ground level – indicated mostly by people over 46 years old)

Despite thermal modernization projects completed so far, many people believe that further energy-saving measures can be taken, and use can be made of renewable energy sources; they point mostly to solar energy (sun collectors and photovoltaic panels). They also see a potential for reducing water consumption. However, considering current practices of housing stock management, this would mean a completely new direction.

As comes from this survey and surveys conducted previously, the residents are willing to contribute to development of their living area – about 50% would offer their work, and over 40% would pay additional money for some particular improvement actions. The latter can be considered in the estate’s repair budgets – if the facility managers notice this potential until the most committed – older – residents are still in place.

Opinion surveys, such as the one presented in this paper, are claimed to provide the right direction for housing estate management – a contribution to user-focused planning for better maintenance of the built environment.

ACKNOWLEDGEMENT

This work was financially supported by Ministry of Science and Higher Education within the statutory research number S/19/2015

REFERENCES

[7] Zaniewska H., Thiel M.; Rewitalizacja Miast Polskich (Urban Renewal of Polish Cities), Instytut Rozwoju Miast, Kraków 2010 (in Polish)
[8] Kossak-Jagodzińska A.; Regeneration issues related to residential housing from the 70s of twentieth century based on the example of the I.J. Paderewski Housing Estate in Katowice. Architecture, Civil Engineering and Environment, No.2, 2015; p.21-30
[10] Ostańska A.; Podstawy metodologii tworzenia programów rewitalizacji dużych osiedli mieszkaniowych wzniesionych w technologii uprzemysłowionej na przykładzie osiedla im. St. Moniuszki w Lublinie. Wydawnictwo Uczelniane Politechniki Lubelskiej, (Outline of a methodology for creating revitalization programs of large housing estates built in the industrialized technology on the example of St. Moniuszko estate in Lublin, Poland. Publication of the Technical University in Lublin), Lublin, 2009


[16] Ostańska A.; Problemy energooszczędności w obszarach zurbanizowanych na przykładzie Lublina (Problems of energy efficiency of urbanized areas – the case of Lublin), Przegląd Budowlany, 4, 2011; p.182-185 (in Polish)