Redefinition of prefabricated large panel building systems - face lifting or disruptive revolution

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Abstract. The notion of "a large panel system (LPS)" means a building system from prefabricated structural elements, concrete slabs, used for the construction of blocks of flats and other buildings. Despite its simple definition, the name evolved over time into an urban, architectural and sociological phenomenon of massive impact changing the character of many European cities for good. It is estimated that nowadays in Europe (excluding the countries of the former Soviet Union) around 41 million inhabitants live in housing estates built from prefabricated panels. The presented elaboration aims to determine a real scale of this issue and provoke a discussion on the basis of undertaken actions - the discussion about the possibilities of stopping the destructive spatial and social processes affecting such areas. On the basis of the above-discussed architectural, urban planning, sociological and technical aspects of the large panel system housing estates and their juxtaposition with competitive contemporary housing estates, an attempt can be made to compare the negative and positive characteristics of these areas. A division into three groups is proposed: 1. Spatial and functional parameters in urban planning, 2. Spatial and functional parameters in architecture, 3. Technical and aesthetic parameters. However, the above-described terms mainly function on the grounds of the downtown (city-centre) building development. Therefore, only by the reference to the revitalization of housing estates do we understand specific areas in degraded housing complexes. Finally, the undertaking of the revitalization actions in the context of large housing developments made with industrial technologies is called 'the humanization of housing estates'. This term refers to a whole range of works, beginning from the survey of the technical condition, through consultations with the local community, to the selection of solutions in the field of architecture, economics or ecology. On the contrary to the typical modernization, humanization focuses its activities also on the analysis of the collective addressee, their needs and expectations. Humanization of huge housing complexes is coupled with the strive for sustainable development of cities, which has recently become a strategic term in the economies of all developing European countries.

1. Introduction
Today, massive housing developments made from prefabricated concrete panels (popularly called slab blocks estates) are considered to be problem areas which belong to the same group as pre-war communal housing resources, former company apartments, residential units adapted from collective accommodation establishments, communal flats or temporary accommodation facilities, such as barracks or containers. The above-mentioned housing complexes are characterised by the concentration of such phenomena as poverty, exclusion or even social pathologies. It is hard to believe nowadays that their creation and construction was part of a carefully thought-out, long-term concept, which was to merge an
urban, social and architectural thought. The germ of an idea of the housing construction as a large-scale investment was born with the concept of a utopian city. It goes back to as early as the 17th-18th centuries when the development of industry caused the migration of rural population to towns. Sudden densification of cities, the entailing social changes and the lack of proper technical infrastructure spurred the utopists, like: Saint-Simon, Robert Owen or Charles Fourier to work at theories which could improve living conditions of a new social class that is of the workers. Charles Fourier is the author of a theory of the so-called movements, which is pertinent to the subject of large-scale housing construction discussed therein. According to assumptions of the above-mentioned theory, industrial warehouses would be transformed into shopping centres and then residential places. These newly-created cities that are large complexes of buildings, ‘phalansteries’ would be composed of individual units called ‘phalangs’, which could house from 1800 to 2000 people. This number, according to Fourier, would represent 810 types of character which result from 12 ‘passions’ present in the world. The above-mentioned buildings would be quite similar to later assumptions concerning the interpenetration of internal spaces with external ones or the provision of public utility buildings. Neither in Fourier’s case nor in Owen’s did the implementation of these utopian visions meet with success, however, the very idea assuming the superiority of the social interest soon stimulated a series of new initiatives. A subsequent valuable contribution to the way of thinking about new housing conditions was the Athens Charter, which was elaborated during the International Congress of Modern Architecture in 1933. The charter stated that ‘After the errors committed over the past 100 years, architecture must give its attention to an individual and create devices which will define and facilitate his/her living ...’. The post-war situation which resulted in a rapid growth of the population and the entailing huge demand for flats – only facilitated the continuation of this concept. It was then when the armaments industry started to be used for the needs and development of housing. That moment became an ideal chance for the modernist thought which by referring to the care for a human being or to harnessing technical aspects or aesthetic functions was well received and perfected. Postulates, such as ‘Form follows function’ (Louis Sullivan), ‘Less is more’ (L. Mies van der Rohe), ‘Utility is a primary law of aesthetics’ (Bruno Taut), in connection with watchwords about the creation of healthy and human-friendly space resulted in the strong conviction that modern architecture should be used with the purpose of obtaining greater social justice. Open cities, garden cities, where the main designing guidelines were sunlight and all-surrounding greenery, were set as examples. The architect who pursued the implementation of the ideas of functionalism to the fullest extent was none other but Le Corbusier. His motto ‘house as a machine for living’ alluded to one of the postulates announced in the publication ‘Vers une architecture’ (‘Toward an Architecture’): ‘The structures of houses must be manufactured in big factories, where there is a possibility of precise quality control. A huge part of the building process should be done without wet construction works, with the application of natural and artificial materials; the house should be assembled on the site using ready-made, prefabricated elements. Big industry must take control of the construction ...’. This reasoning resulted in the construction of the most important buildings symbolizing that epoch in architectural thinking about housing, namely: ‘Unites d’Habitation’ in Marseilles, Berlin, Nantes and Firminy. The first of the units was built in 1952 and consisted of 137 flats located on 12 storeys. The building combined residential and services functions as well as public space located on the roof. The form simplicity was a harbinger of the style which was to become prevalent in later objects of collective housing architecture (minimum use of decorations, regular rhythm of window openings, elevation without finishing works). The body itself was going to be repeated, in slightly modified versions, in many building implementations all over Europe.

Development of housing estates constructed from prefabricated large panel systems on a mass scale in the 1950s and 1960s resulted both from the standardization of technology and the situation of countries in Western Europe, which was affected by the overpopulation of cities resulting from the migration of the population after World War Two and the destruction of some urban centres. The above-described situation spurred the authorities to make use of modern architecture to increase the standard of living and provide a sufficient number of flats for rent, which would befit the financial
capacity of new users – the workers. Against the widespread belief that large panel system building is the domain of Eastern Europe, it was, in fact, the developed countries like France, Sweden, the Netherlands or Finland that started the current of monolithic construction.

A pioneer country using prefabricated concrete for housing purposes was the Netherlands, which began to apply this technology to make the existing cities and estates denser. However, the scale of that investment was incomparable to great French implementations, where on the outskirts of Paris huge housing complexes were built from scratch, including the first one ever – Sarcelles. Its construction in 1955 was sparked by the mass inflow of repatriated immigrants from Algeria. As a result, more than 12 thousand flats were built there over a period of 20 years [1].

There were multi-storey and multi-access buildings constructed in groups and usually located in rows or in a free composition of detached buildings. Subsequently, more and more new districts were built at a high speed for people moving from the outskirts into the city. These districts became new satellite towns, in the case of big expansions, or just a ‘facelift’, in the case of densification of the existing building development. The most spectacular implementations include most high-rise housing estates on the outskirts of Paris, such as: Aulnay Sous Bois (3000 flats), La Courneuve (4000 flats), Grand Quevilly or Montparnasse, which in no time at all became separate cities. However, as early as in 1973, due to over-scaling (oversizing) of individual designs as well as racial and religious issues, it was decided to ban the construction of building developments bigger than 500 flats in order to ‘prevent the segregation of society by the form of living’ [2]. In the same year, first modernization works were started and a new regeneration plan for the years 1976-1980 was drafted. In spite of the implemented revitalization programs, the fact is that almost all satellite towns of Paris have remained in a group of ‘Zone Urbaine Sensible’, i.e. in direct translation: ‘a sensitive urban zone’. Due to poverty, high unemployment rate or difficulty in the integration of young people, such areas have become the priority in the city’s policy.

In Poland, in Nowa Huta, it was already in the 1950s that prefabricated technologies (slag concrete) began to be used. However, the first implementation of the typical large panel system is deemed to have taken place in the housing estate Jelonki in Warsaw (commissioned in 1957 [3]). The capital city, which lost a major part of its housing tissue during the war, was the quickest to adopt a new building system. The post-war condition of other cities in Poland coupled with considerable growth of the population became the reason for the construction of housing estates in the large panel system on a grand scale in different regions of Poland (Wroclaw - WWP, Poznań - Winogrady, Kraków (Cracow) - Domino) [4].

Initially, there was a ‘closed system’ of construction which offered a limited set of prefabricated elements and did not allow any big flexibility in designing of the flats. It was only after the competition for designing of an open large panel system18 organised by the Association of Polish Architects together with the Polish Association of Engineers-Technicians of Building Engineering in 1967 that the second phase of the evolution of this type of construction took place. As a result of the above-mentioned competition, two systems were selected which were used on a mass scale and thus contributed to the rapid development of large panel system building in the 1970s. It is estimated that a number of the urban population in Poland in the years 1946 - 1993 rose from 8 million to 23,8 million inhabitants, which means that the majority of the population, perforce, began to live in housing estates made from concrete slabs. The LPS was slowly ousting other, more flexible technologies. The huge housing estates were envisaged for a period of 50-60 years of operation. The foreseen end of the designed utility of the objects will occur within the nearest few years, which entails either complete disassembling or modernization of these buildings. The former cannot be afforded by the Polish economy, because, according to numerous sources, the demolition of large panel system housing estates and their replacement with alternative solutions would take around 40 years due to their large
percentage share in the existing housing tissue [5]. The statement by Helena Syrkus [6] from 1981 summarizing this period of the LPS construction still seems relevant today: ‘The network of housing of the past 25 years reflects in our country, and not only in our country, the dictatorship of ‘large panel system’ and of heavy cranes assembling it. The destruction of the natural environment is progressing at frightening speed, whereas the subject of this planning – the human being and the whole human society – are confused and helpless. (...) What is required now is new visions, new impulses and new ideas. (...) We must create (new ideas) according to Polish customs and Polish landscape’ [7].

On the basis of the above-discussed architectural, urban planning, sociological and technical aspects of the large panel system housing estates and their juxtaposition with competitive contemporary housing estates, an attempt can be made to compare the negative and positive characteristics of these areas. A division into three groups is proposed: [3]

1. Spatial and functional parameters in urban planning:
   a) disadvantages:
      - too big density of building development and the density of population living in such areas in
division with the-then norms; that fact caused the lack of possibilities of self-identification
with the place of living; a phenomenon of ‘diffusion of responsibility’ (social insensitivity)
occurring in large collectives having weak internal bonds[2];
      - over-scaling (oversizing) of spaces between architectural objects, which causes the lack of
hierarchy and clear boundaries between public, semi-public, semi-private and private zones;
the lack of a sense of security in space; progressing isolation and problems with
neighbourhood contacts resulting in the dehumanization of the residential environment;
      - lack of solutions for urban spaces; partly undeveloped empty spaces;
      - insufficient amount or lack of greenery; additionally emphasized by high-rise buildings having
uniform design;
      - lack of sun shade in open spaces, including playgrounds;
      - lack of sufficient number of parking spaces; the use of space between blocks of flats for this
purpose, which additionally decreases the visual quality of space and eliminates biologically
active areas;
      - low utility and programme values of recreational areas, which were often built after the
completion of the housing estate construction and resulted in further densification of space
unforeseen in the designing phase;
      - unclear circulation routes and access roads; the lack of accentuated entries and exits for
vehicles and pedestrians from the housing estates;

   b) advantages:
      - existing housing tissue is adaptable and ready to be modernized;
      - location of the housing estates is often close to the city centres with good public transport;
      - distances between buildings provide sufficient separation from the windows of neighbouring
objects; there is some space to implement green areas;

2. Spatial and functional parameters in architecture:
   a) disadvantages:
      - mono-functionality of housing complexes; a poor range of services, few cultural and
educational objects satisfy only the basic needs of inhabitants and create an effect of a ‘city
dormitory’, i.e. the area deprived of points of interest;
      - identical character of buildings; the lack of differentiating qualities, such as architectural
details, causes the lack of orientation in the housing estate;
      - small diversity of flat types in the housing estate;
      - low standard of flats; disproportionate rooms and kitchens without a direct source of light;
      - no possibility of flexible shaping of the flat by inhabitants;
- unmarked and unkempt entrances to staircases.

b) advantages
- small usable area of flats meets today’s standards of the real estate market;
- real possibilities of changes within complex modernization activities.

3. Technical and aesthetic parameters:
   a) disadvantages:
   - negligence within the scope of buildings’ maintenance during their utilization; insufficient care provided by housing associations;
   - low quality of the applied materials and constructed objects resulting from the speed of works and the simplification of the implementation process;
   - lack of tightness on the joints of the panels and floors leading to leaks and dampness;
   - poor insulation and quality of the window woodwork, which entails high costs of heating and freezing of external walls in the winter or overheating coming from the roof surface in the summer;
   - lack of acoustic insulation between flats, entrance zone and staircases; internal partition walls of the usual thickness of 14cm;
   - poor ventilation; often the lack of the possibility of ventilating flats on opposite sides;
   - difficult emergency evacuation; staircases often provided with security bars;
   - lack of adaptability to the disabled people’s needs; lack of lifts and ramps; too narrow doors and too small bathrooms;
   - low aesthetic value of the elevation, which was originally decorated with terracotta, washed gravel of large granulation or asbestos and concrete slabs; these were replaced later by the systems of insulation finished with acrylic plastering, often in controversial colours; elevations were made unattractive by spontaneously decorated balconies – screened, painted or permanently enclosed; low aesthetics of such buildings is an important issue in a social context as it causes the migration of people having a better social status to other districts of the city and leaves behind economically weaker groups or the elderly.

   b) advantages:
   - the tissue is durable and safe in terms of technical conditions of the structure (oversized rebar reinforcement and hangers); it can be further used for a long time;

Analysis of the above-listed features is an obligatory action which must be undertaken in order to carry out further modernization works of the large panel system housing estates. In spite of the fact that the drawbacks considerably prevail over the advantages, revitalization of these areas seems possible and feasible, as similar examples can be seen abroad. The issue raised here is often brought up in various scientific and trade-related publications and described as ‘humanization’. A conscious definition of the differences between modernization, revitalization and humanization of the large panel system housing estates constitutes the basis for the determination of future design activities concerning such areas. Thus the term of ‘modernization’ defines a series of actions aiming to improve the technical quality of buildings. ‘Revitalization’ refers most often to the renovation of buildings which lost their functional or aesthetic quality. It is only ‘the revitalization of urban areas’ that means ‘the increase of the quality of life of their inhabitants, causing proper and better functioning of the city’ [8].

However, according to Ostańska, the above-described terms mainly function on the grounds of the downtown (city-centre) building development. Therefore only by the reference to ‘the revitalization of housing estates’ [1] do we understand specific areas in degraded housing complexes. Finally, the undertaking of the revitalization actions in the context of large housing developments made with industrial technologies is called ‘the humanization of housing estates’. This term refers to a whole range
of works, beginning from the survey of the technical condition, through consultations with the local community, to the selection of solutions in the field of architecture, economics or ecology [1]. Contrary to typical modernization, humanization focuses its activities also on the analysis of the collective addressee, their needs and expectations. Humanization of huge housing complexes is coupled with the strive for sustainable development of cities, which has recently become a strategic term in the economies of all developing European countries. In revitalization activities, the very fact of using the existing housing tissue agrees with the assumptions of the Leipzig Charter73, which speaks about the intensification and densification of the existing building development and negates uncontrollable sprawling of the cities (caused also by the addition of housing development areas in the suburbs). New transformations in architecture and urban planning are directed at a human being and their needs, and lead to the growth of integrity of community entailing the improvement of the residential environment. Provided that the modernization activities are conducted in an intelligent way, for instance by a conscious use of material or ecological approach to their utilization, then we can speak about ‘sustainable architecture – a cohesive product between the community, environment and ecology [9].

2. Materials and Methods
Below are presented examples of the ‘tuning’ of the large panel system buildings implemented in accordance with the above-described assumptions. The selection of the examples refers to a diversified scale of transformations introduced in the LPS buildings, including, in a sequence:
- humanization of a huge residential complex;
- revitalization of the area of a dozen or so buildings;
- works performed on a single object, which eventually will form several separate buildings;
- works on a single object with the purpose of a complete change of its function;
- works on a single object which is finally to become a dominating object on a city scale;

2.1. Housing estate ‘Markisches Viertel’, East Berlin, Germany
Works performed on the housing estate ‘Markisches Viertel’ in Berlin are a model example of the complex humanization of a huge housing estate (12 thousand inhabitants) built from the large panel system (Figure 1). This area is located in the eastern part of the German capital city and from the very beginning, it did not have a fast public transport link to the city centre, which after some time started to take its toll on the development of this district. Massive, oversized spaces between the buildings, which rose even to 16 storeys, caused the lack of identification with the housing estate on the inhabitants’ part. It was typical of this kind of housing complexes. Nevertheless, it resulted in progressing problems in the community context. Lack of prospects, increasing unemployment, dwindling community and finally vacant flats had to make some impact on the city’s policy towards this estate.

![Figure 1. Humanization of the housing estate ‘Markisches Viertel’, foto. J. Cibis](image-url)
These decisions resulted in:
- creation of legal grounds for the participation of inhabitants in designing work;
- construction of an underground railway linking the housing estate to the city centre;
- re-building of streets; creation of a network of pedestrians’ paths and bicycle routes; removal of parking lots from the spaces between the buildings;
- completion of the services infrastructure of the housing estate by providing it with new shopping centres;
- re-building and highlighting of the entrances to the buildings’ staircases;
- beginning of the modernization of flats and entrance zones (after the analysis of the area with consideration of the ‘Berlin Strategy’, it turned out that the adaptation cost of a flat in the LPS building amounted to around 25-35% of the cost of construction of a similar new flat) [10].

2.2. A housing estate in Leinfelde, Germany, designed by Stefan Forster, 2001-2006
This German architectural office specializes in the modernization of large panel system buildings, which can be seen in over 8 implementations of this type in the housing estate in Leinfelde [11] - each of them implemented on a grand scale and with a flourish (Figure 2). Designing works were based on 5-storey blocks of flats, well known to Polish realities, finished with washed gravel of different colouring.

![Figure 2](image.jpg)

**Figure 2.** Humanization of the housing estate in Leinfelde, Germany, designer Stefan Forster

The transformations of these objects included:
- demolition of the most upper floors and selective removal of the buildings’ fragments in order to create terraces;
- addition of balconies in the steel structure or loggias as cantilevers;
- introduction of a clear division between public space (squares between buildings), semi-public (designated streets and pedestrian circulation routes), semi-private (fenced and developed spaces in front of individual entrances to the buildings, designed small gardens for the inhabitants from the side of the elevation with balconies);
- diversification of forms and architectural detail emphasizing an individual character of each building at a small financial expenditure;
- complex re-building of the interior (a new division of flats by demolition of some of the walls, making openings in the walls or enlarging the window openings);
- adaptation of buildings to the needs of the elderly and the disabled by installing lifts (in some buildings also ramps next to the entrances to the buildings)

2.3. Residential complex in the housing estate Gorndorf, Saalfeld, Germany, designer Junk & Reich, 2004
The concept of re-building of a typical large panel block of flats (consisting of 4 entrances with staircases) was based mainly on the desire to increase the living standard of its inhabitants and create new types of flats, untypical of the LPS building development and modelled on less dense housing development. In order to do that, the block of flats was divided into four separate segments by demolition of two tracts at the staircases, which caused the decrease of the number of flats: from 40
down to 16. The front elevation was modestly accentuated by highlighting the entrance to each building’s staircase, whereas the backside of the building was divided even further, which enabled the sunlight exposition from two sides. New space between the buildings was used as the parking lot for the inhabitants (the surface was additionally hardened by using rubble from the demolition), whereas the gardens on the balcony-side of the buildings were planted with greenery and divided between the inhabitants [12]. (Figure 3)

**Figure 3.** A building made in the large panel system, before transformations, Saafeld, Germany

2.4. Lausitztower – residential complex, Hoyerswerda, Germany, designer Muck Petzet
A competition design by German architects was implemented in 2007 in the town of Hoyerswerda (Figure 4), which is one of the typical examples of eastern areas endangered by depopulation. After industrial plants closed down, the number of the local population fell by half (from 70.000 in the early 1980s to approximately 30.000 in 2015). The town strives to re-establish its former character from the pre-industrialization period by promoting, among other things, the existing green areas. The above-mentioned design uses the greenery in connection with the building, which has become a noticeable dominant in the city’s landscape. The greenery was applied on the elevation in various ways: from fixing decorative flower and plant pots, through the use of plants as ‘reliefs’ on the surface of the building, to the creation of a green balcony. It was compositionally differentiated against the background of the elevation and broke the monotony of the 13-storey gable wall. The concept was completed with the opening of the last floor, which started to play a function of a recreation platform for the building inhabitants as well as a public viewing platform (highlighted by colour against the cityscape) [5].

**Figure 4.** Residential complex in Hoyerswerda after transformations, Germany

3. Results and discussions
The above-presented examples along with the theoretical discourse prove that the ‘tuning of the large panel system building’ is based on a system of transformations which can be used for the majority of
huge residential complexes taking into consideration their local context. It can be briefly defined as the interaction between areas (territories) and ways of living as well as the search for architecture suitable for sustainable cities. This last issue dovetails with the assumptions of the housing estates humanization. Newly developed urban planning guidelines should generate further regeneration of the elements of economic, social and cultural environments and contribute to the attractiveness of the city on a regional scale. The above-discussed aspects of modernization of the LPS structures have yet another significant issue in the background. It might be even the most important element of the transformations occurring in the built environment behind the shield of ‘humanization’, namely the phenomena and alterations taking place in the sociological sphere. The housing estates made from the large panel system became such a controversial topic that it was very often skipped as inconvenient in discussions about the future of housing architecture. In the era of capitalism opting for individualism, the slab blocks from the epoch of the Polish People’s Republic (communist regime Poland) became a pejorative term. It would be hard indeed to find now the reasons for which the idea of the collectivism of that epoch should be still praised. However, continuous ignoring of this troublesome architectural heritage is no longer possible, and it is not only due to the scale of its prevalence, but also because of the fact that, as Piotr Pytlakowski writes, ‘(...) The large panel system buildings are a reality – as an architectural, urban planning and sociological phenomenon’ [13].

4. Conclusions

The problems occurring in the ‘slab blocks estates’ appeared not only due to economic and architectural reasons, but also because of the subjective perception of social and psychological space. Such problems encompass all aspects of human living, beginning from complicated technical issues impeding smooth daily functioning of the users, to basic needs, like: a sense of security or a sense of belonging of an individual to the community. The most obvious drawback is the over-scaling or oversizing of the architectural and urban planning assumptions. This fact affects the perception of space by the inhabitants, who accuse it of anonymity; ‘...the anonymity of flats in the building, of buildings in the housing estates and of housing estates in the cities.' The elimination of the element of the centre produced empty undeveloped spaces of undefined hierarchy lacking a clear division into public, semi-public, semi-private or private spaces [14]. As was noticed by Nowicki already in 1980: ‘...there extends anonymous space, nobody’s land. It is the area, the distance that must be covered on the way between the flat and the attractive centre or other attractive areas on the outskirts of the city; it is a transit area’ [15]. Such a situation automatically leads to the lack of identification with the surroundings on the user’s part and entails the lack of responsibility for the common good. According to Ewa Kaltenberg-Kwiatkowska, PhD: ‘... (multi-family housing)... has lost the features of true housing collectivism, when in one housing estate there lives a group of people joined by a collective vision of social life, community life’ [16]. The loss of identity is only intensified by the monotony of aesthetics and modest elevations, often ageing in an ugly way – in short, the surroundings that only discourage the inhabitants from active use of the existing spaces between blocks of flats. Quoting professor Andrzej Basista: ‘Architectural monotony of flat roofs, rough rhythms of windows and balconies as well as the same-looking concrete walls could be broken by neither the differences in the buildings’ length, nor the differences in the number of buildings’ storeys, which started to appear since the 1970s. It is these identical-looking residential buildings spread all over Poland that destroyed the appearance of many old cities and the scenic beauty of their surroundings’ [17].

Progressing isolation of users casts shadow on the community bonds and interhuman contacts, which are often down to a minimum, whereas the stabilization of these phenomena in time generates a further negative attitude of the rest of society. In the era of the development of huge housing estates, the rent or purchase of a flat resulted from different reasons than in the present time. Many limited alternatives of the-then residential building development caused the inflow of lodgers from different social classes. Piotr Pytlakowski refers to the situation in those days writing that: ‘A paradox of that time was reflected in the phenomenon of mass scale. People enrolled on queuing lists waiting for a membership in a housing association, but it was certainly done not for the love of cooperative rules
but out of necessity.’ However, with the passage of time, not only did the housing estates grow older but also their inhabitants. Lodgers from the middle and higher social classes, who had some financial means, moved out from the slab blocks estates leaving behind the community of elderly inhabitants and newly arrived slab housing dwellers – the chavs (called blockers in Polish) [18]. The latter group, although it has not been thoroughly defined, constitutes a rare example of the impact of the place of residence exerted on the character and behaviour of its inhabitants. It points out once again to the phenomenon of large panel system housing estates as a multifaceted issue. A negative social attitude to this phenomenon, although deepely rooted, is starting to change with the progress of successful revitalization works [19]. The housing estates in eastern lands of Germany are already changing their appearance and the blocks of flats in the centre of Berlin are being rented by artists of various specializations, who demonstrate in this way their alternative approach to life and thus convince others to take liking to the ‘large panel system’ [20]. In Poland, similar efforts are concentrated in the initiatives, such as associations providing information about the potential of the LPS housing estates, conferences, meetings or workshops raising social awareness within the scope of existing problems and future issues regarding revitalization.

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[18] The term ‘blockers’ in Polish (similar to chavs) defines the youth living in slab blocks estates, the name has been adopted by the media and other opinion-forming bodies, author's explanations.

[19] A. Skibińska, Pustostan NRD, a report from "Polityka" no 49 (2379), p. 46, 2002.

[20] Social initiatives, such as; Association Odblokuj (translation: 'Deblock' or 'Unblock') created by Marlena Happach, which associates architects, urban planners, sociologists; it implements projects and investments aiming at improvement of the residential environment in big housing estates complexes (www.odblokuj.org); association Nasz Park (translation: Our Park) promoting the creation of parks in the housing estates in spaces between blocks, run by Jacek Powałka, [Accessed 22 March 2020] Available at: www.nasz-park.pl (in Poland).