

# HOUSING IN A CONTEMPORARY CITY: LIBERAL ECONOMY VERSUS SUSTAINABILITY

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## ABSTRACT

Housing development is a predominant component of urban fabric in cities. Its quality is defining standard of living in terms of inhabitation, work and leisure. High demand for new homes and high costs of housing property purchase in most of European countries stimulate rapid development of new settlements.

The aim of the paper is to identify and characterise selected housing market factors that influence contemporary urban development of cities in Poland. After 1990, when the economic transformation in Poland started, it has strongly influenced the shape and spatial circumstances in Polish cities. The liberal economy in the period of transition did not result in many social housing projects. The role of the state investor, who has been building the major part of housing estates before 90. was taken over by developers who build houses and housing estates for sale or rent. This is a typical feature of the Polish housing architecture in the discussed period.

On the opposite pole to the phenomena mentioned above various concepts of sustainable, high quality city have been elaborated. A sustainable city provides their residents a good quality of living: satisfactory social links within the neighbourhood and easy access to work and all kinds of services accessible by public transportation. Location criteria for new subdivisions protect valuable areas and respect local climate phenomena. Building technologies implemented enable saving of energy and other recourses and also improve the microclimate of the neighbourhood.

It may be assumed that the attempts to make cities more sustainable depend mainly on housing market factors as land supply for developers, prices of homes and residential preferences. Nevertheless, these factors often force development projects contradictory to the rules of sustainability. The conclusion of the paper therefore will attempt to formulate the diagnosis of the relationship between housing market and requirements of sustainable development of cities.

**Keywords:** Housing environment, sustainable city, liberal economy.

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## 1. INTRODUCTION

Today cities formulate strategies presenting their approach to sustainability. Detailed programs of actions that can help to achieve better and healthier living conditions get accepted by the governments and citizens.

During the last 20 years, the architecture and design community has established a consensus that sustainable development presents a vital topic in predicting and implementing future trends, needs, production and consumption patterns. Sustainability so is affecting the built environment and is modifying people's lives. New trends of use of the living space come from the new concepts of urban layouts and architectural projects for the housing environment (due to the sustainability rules) as well as they are results of technological development. The interdisciplinary cooperation is then necessary to meet the complexity of problems connected to global sustainable development. In practice, the urban and architectural design of sustainable housing environment should be considered in conjunction with technical, social and cultural conditions.

Ecological advantages, urban and architectural design can work as a catalyst for the advancement of social sustainability and social inclusion. A holistic approach in design, considering the social, economic and ecological dimensions of solutions, maximises the success of future developments. The above quotes illustrate that the way sustainability is framed in the architecture and design disciplines determine the issues that are considered important: technology fixes, user involvement or cultural and social interaction. The actions within the micro-level provide a better, more sustainable way of the use of some products: they can be implemented with only small expenditures but must be promoted and supported by the educational campaigns addressed to the user. To this level also belong the small improvements of existing products: e.g. non-toxic (or low toxic) fuel used by existing home heating systems. The meso-level includes new, sustainable products and technologies for construction projects. This group of improvements concerns all the innovative technologies and materials therein sustainable façade systems, intelligent services. In the last decades, we can observe the rapid development of the product services belonging to this group. Finally, the macro-level concerns more complicated action structures: network cities respecting sustainable rules, processes of social participation and neighbourhood organisation (Keitsch, 2012).

## 2. WHAT DOES THE SUSTAINABLE HOUSING ENVIRONMENT MEAN?

As a broad concept, sustainable development is today an unavoidable mainstream connotation, with increasing implications on how we reside, conduct business and educate. Ranging from policy agreements or guidelines to

pragmatic in-practice approaches, the global challenges we face in the time of rapid changes (whether climatic, financial or social) are addressed differently. The idea of sustainability can be applied practically to all aspects of human society and activities influencing economy and political systems, affecting ecological and environmental behaviour and social habits (Bannova, Hagbert, 2014).

### **2.1. Urban attributes of sustainability**

Sustainability in housing environment appears already at the stage of planning. Lands for future investments must be carefully selected according to the rule of protecting the biologically active areas of the earth. This means so that the construction sites for sustainable estates would cover also the less attractive and difficult locations never landscaped before or the brownfields. All types of location specified above usually bring urban and technological challenges during the design and building processes. The other possibility to achieve a sustainable settlement is transformation of the existing fabric by improving technological quality of development and social aspects of the quality of living. An alternative for the urban sprawl creating extensive suburbia will be rather a set of new eco-districts independent of the city infrastructure.

The eco-district size of about 5-10 thousands inhabitants and sufficiently high density of development justify the local services and facilities building. Eco-district may have own transportation system, recreational and green areas and social infrastructure. It has also local job possibilities. The compact structure increases accessibility of services and encourages residents to give up the car for a bike within the district. On the other hand, efficient transportation network enables gratification of higher needs. Urban quality of the eco-district makes its structure: differentiated scale, height and types of buildings. Attractive public spaces and urban furniture help to create social life and establish neighbourhood ties (Drapella-Hermansdorfer, 2011).

### **2.2. Architecture design quality**

While the forms of architectural response to environmental issues will differ markedly from place to place, the professional field of sustainable architecture until now has followed a trajectory similar in all developed countries. Initially the discourse was dominated by issues of energy efficiency, but quickly expanded to include broader environmental and social concerns. Currently the field encompasses a diversity of practices and perspectives that range from the pragmatic to the esoteric and extend from local discourses of place to global discourses of technology. Architects suspect that sustainable architecture is probably a term that will disappear in the future because what we are talking

about is good architecture and good architecture should be sustainable. The extreme version of this view is to construe sustainability and architecture as synonymous; sustainable architecture becomes a tautology where it is not "architecture" unless it is "sustainable" (Owen, Dovey, 2008). Sustainability has a certain currency or symbolic capital in the field, but only to the degree that it can be seen as producing good architecture. Sustainable imperative is responsible for a productive unsettling of the field, transforming the space of possibilities and producing new ways of thinking about architecture.

Respecting the principles of sustainable design an architect may use two groups of tools. The first consists of the so-called "traditional approach", while the other means implementation of sustainable technologies (Schneider-Skalska, 2012). Implementation of the so-called traditional pro-environmental actions is always supported by the use of modern, innovative technologies. Altogether they include the following actions to achieve sustainable architecture:

- Use of recyclable materials and restoration - is the appropriate choice of materials at the design stage, that they can be recycled and used in construction again;
- Water storage system - in addition to the construction of water reservoirs, rational use of water and the recovery of waste water systems should be implemented, e.g. "gray water" in toilets;
- Building orientation for daylighting;
- Attention to air quality in buildings to avoid "sick building syndrome";
- Striving to reduce the electricity consumption, replacing electricity with renewable energy;
- Use of environmentally friendly materials for building construction to minimise toxic and noxious emissions to air and waste.

All the actions mentioned above should be supported by the use of innovative energy-efficient materials and technologies, including building control systems (Zielonko-Jung, 2012). This concept of sustainability in architecture must affect the architectural form. New materials and technologies bring new forms and create a new language of architecture. The most pervasive among them seem to be *green architecture* and *vernacular architecture*. While the *green architecture* focuses on fitting the building into the natural environment, respecting location and the climatic conditions using simple, natural and low-processed materials, *vernacular architecture* (called also *folk architecture*) means the use of local skills, traditions and recourses in building design.

### **2.3. Social aspects of sustainability in housing**

Sustainable settlements promote local governments and all kinds of social activity. An important role is played by social participation that allows creating original, individual design concepts and development. Participation in the design process teaches residents responsibility for their environment and encourages to creativity. Thanks to such creativity housing environment may become exciting place of living, neighbourly friendly, safe and giving a chance of personal development to everybody (Sassi, 2006). New settlements designed according to the rules of sustainability would have access to green recreation areas and also should have access to the fields and gardens used for home – or collective, limited ecological food production. New “garden” activities may enrich neighbourly ties and improve mutual confidence helping at the same time partly solve the unemployment problems and supply healthy food to community residents (Kujawski, 2012).

### **2.4. The essence of innovation in architecture and construction industry**

The innovativeness of residential buildings is always a result of novel architectural solutions, both in terms of construction and organization, referring to the investment process. As far as architecture is concerned, innovative buildings have a form that stands out of the binding standards, reflect new trends in style and are experimental. Their structural materials should be environmentally friendly and recyclable. The finishing and furnishing should be consistent with the principles of ergonomics, as well as with other health and ecological requirements. Houses endowed with innovative qualities offer economic benefits to their users, because thanks to new materials and technologies their maintenance costs are reduced and safety level enhanced (fire protection monitoring, burglar alarms, etc.) They contribute to environmental protection by reduced energy consumption and rationalization.

Commercial architecture has provided a test field for such innovative solutions, especially office buildings, the functionality and maintenance of which cause intense problems. Innovative solutions in housing, transferred from commercial architecture, have been applied in apartment buildings offering high standard of flats and commonly used space. However, this offer is targeted at wealthy consumers, first and foremost, inhabitants of the Warsaw agglomeration and several other big Polish cities. Consumers undertaking the decision of buying such expensive property expect super-standard quality. Some more advanced technical solutions (mechanical ventilation, lighting control, heating control) are gradually introduced in segments of cheaper flats and are becoming popular.

The process of political and economic transformations have resulted in opening up the borders and welcoming new technologies, unhindered transfer of architectural ideas and concepts. International contests organized by Polish investors attract famous architects and their works are pride of place in Warsaw and other big cities. Polish design offices also participate in the contests and thus join the group of world-wide recognized architects. Renowned designers guarantee high quality architecture, their works are recognized landmarks that become part of their brand. Attractive and innovative architectural concepts are a response to new needs and requirements for housing, work environment and leisure facilities.

Solutions reducing maintenance costs of buildings are also an important field in which innovation is implemented. They bring tangible financial benefits for users, as well as satisfaction from their environmentally-friendly aspect. Maintenance costs may be lowered by reducing the demand for energy consumed by energy-intensive equipment and by energy conservation. In the case of the former activity, energy-efficient heating systems may be installed, or systems utilizing natural energy sources (for example: solar panels). Energy Power consumption may be reduced by energy-efficient and more durable bulbs and lighting systems, lighting control, heat supply control of flats and commonly used space inside buildings. Such solutions are convenient for occupants, as they develop the habit of conserving energy. UE standards and increasing requirements also promote the use of fire monitoring systems, burglar alarms and central monitoring enables cheaper and more reliable service and control of buildings. Another source of potential savings is rational supply and distribution of energy carriers.

The process of implementing innovative solutions, especially environmentally-friendly ones, is very dynamic in the construction industry; however, it arises some questions and doubts especially as far as financial layouts and the related savings are concerned.

### **3. FINDINGS OF THE STUDY**

#### **3.1. Methodology**

The research findings were drawn from the survey where respondents were asked to answer 30 questions on both current and expected housing conditions. Housing conditions and expectations refer to a flat, an apartment building, a housing estate and location. The principal aim of this paper was to analyse selectively some key characteristics of housing environments. The criterion of choice was defined as follows: Can the property be considered as an indicator of sustainability. The study was a part of a research grant: *Housing preferences in Poland - Housing Models*. Respondents represent 11 Polish cities; the group of the biggest cities: Warsaw, Wroclaw, Krakow, the average city size: Bielsko-Biala,

Lublin, Szczecin and Silesian agglomeration: Chorzow, Gliwice, Katowice, Sosnowiec and Zabrze (N=900). Respondents belong to five segments of households: single, 1+1, 2+1, 2+2 and 2+3, and four income groups. Using the quota method, within each segment, eight building types inhabited by the respondents were selected.

### **3.2. Acceptance of selected elements of a sustainable housing environment the research findings**

The research bears out the need for rigorous policy to support sustainable housing environments at both the levels of EU institutions and European government. In Poland, as is the case in other countries, the government should create legal, financial and institutional conditions to promote pro-environmental housing development. Robust legislation will enable state institutions to finance innovative projects and also open attractive possibilities for private sector investment in sustainable building technologies. These processes are progressing slowly in Poland with varying results. At the same time, we can observe the growth in pro-environmental awareness by city planners and architects. This is having a positive impact on the attitudes of investors and home buyers and is helping to promote sustainability principles. Nevertheless there is still a critical need for countryside education and media campaigns for sustainable living environments in Poland.

Nevertheless it must be recognised that a perception still exists that new, environmentally friendly solutions and technologies in residential buildings can generate unacceptable additional costs in comparison to traditional development. This problem is often apparent in the "pioneering phase" of new and developing technologies when information about innovative technological measures has not been fully explained and widely disseminated.

Environmental sensitivity in relation to building technologies, however, is only one factor that will induce consumers to bear higher initial costs for a house/flat that incorporates various sustainable living measures. The purchasing power of the majority of buyers will severely limit pro-environmental motivations and attitudes. Buying an "intelligent home", in Poland is still considered a luxury, a manifestation of lifestyle/snobbery. Hence the kinds of that incorporate sustainable environment solutions are usually offered to wealthier citizens in tower blocks representing some of the most expensive housing complexes in the big cities. Use of innovative and environmentally friendly solutions in housing developments can also raise the price per 1 sq. m. often making people choose between say the floor area size and the possible sustainable technologies. It is noteworthy here that as new technologies develop and are mass produced

this lowers the unit price of such technologies. Photovoltaic cell production is an example of this phenomenon. The next decades are likely to show the choices that are affordable to Polish citizens and the importance of sustainable housing solutions in the process of housing choice.

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Among the features of a housing environment we can distinguish two groups of characteristics related to sustainability. The first group includes the **attributes of the dwelling and the building**, and the second includes the attributes of the **social dimension**. Respondents evaluated proposed features in their current home on a scale of 1 to 5, where 1 is a very low standard and 5 a very high standard. Using the same scale, they then assessed the level of importance of the same characteristics in the future home they intend to purchase (In this case 1 is a low level of importance, and 5 a very high level of importance).

The first group of characteristics included the evaluation of acoustic comfort, thermal comfort and energy efficiency. While the current standard for properties of a flat were rated average, the majority of respondents indicated that they are important or very important. Analysing the level of importance of acoustic comfort, thermal comfort and energy efficiency it can be concluded that the respondents expect both high standards of acoustic and thermal properties as well as energy efficient solutions. This indicates that the knowledge about pro-environmental technologies and materials is already widespread. Respondents also understand the nature of energy efficiency and realize that the implementation of energy saving technologies does not mean the resignation or diminution of thermal comfort in their flats. It is worth noting here that there is a significant gap between the current use of energy-saving solutions and quality of life expectations in Polish housing. Respondents unanimously declared that the energy efficiency technologies would be very important or important in their future flat/home (87.9%), while only 20.4% of them use such technologies now. Social attitudes of the housing environment seem to be of lesser importance for respondents. Expectations related to attractiveness and image of the district and easy identification of the neighbourhood were not very high. Respondents declared that the image of the district in which they live is important for them (but not very important!) and that they do not expect a better image for their



future settlement. This result can be interpreted as an indicator of the low level of identification with the place of living: i.e. the district, the housing estate and the building. It also could denote a passive approach to the value of a strong and positive image. Respondents tend to believe that the image or perceptions about a housing estate is something that they cannot influence. Attractiveness of the district, however, doesn't create a priority in terms of the future place of residence. This research result may be surprising because city housing market prices are thought to be strongly correlated with favourable locations and attractiveness. Respondents also evaluated and expressed their expectations in relation to attributes of the housing environment such as sense of security, sense of privacy and the ability to establish satisfactory neighbourly relationships. The senses of safety, security and privacy have the highest degree of importance for respondents. Interestingly it appeared that respondents do not feel safe in their current flats and houses. The expectations of a safe housing environment related to a future home is much higher than the evaluations for current housing conditions. The sense of privacy only partly satisfies city inhabitants and its importance for respondents is equivalent to that of safety. The findings related to expectations of neighbourly relationships are also surprising. This aspect of the current housing environment is assessed in a similar way to that of safety. But unlike the sense of safety, it is accorded only average importance in terms of the future living place.

The findings presented in this paper show that consumers in Poland are open to technical and conceptual aspects of sustainability. Low social capital, however, may hamper the development of sustainable communities in Poland (Stachura, 2013). And low social capital related to the housing environment means distrust of neighbors, reluctance to build communities and low level of identity with the place of residence. The phenomenon of low social capital is worrying, because it can create a barrier to community building. It is hoped that with appropriate policies, education and promotion, sustainable communities will become the new driving force behind the growth of social capital.

#### **4. CONCLUSIONS**

This paper discusses key concepts, methods, applications and lessons learned in sustainable architecture, design and housing environment in last 30 years in Poland. In the majority of cases new housing complexes are not very big: they consist of several buildings for about 100 - 500 inhabitants. Such estates are blended into the existing urban and social structures, both in city centers and in the outskirts. Together with the existing development they change for the better the quality of the housing environment: they contribute to organize the space,

they also propose new architectural forms and technologies. As indicated above sustainable housing environment (and architecture) shall be thus well built, easy to use and beautiful. Implementation of sustainability rules is strongly affecting residents' behaviour.

Housing conditions are closely related to housing preferences. Improving housing conditions that is one of the most important aspirations of Polish households means an increase in the standard of living understood as a conglomeration of characteristics of a dwelling and its environment. The level of dwelling attributes importance for Polish consumers in the nearest future will depend on the strongest megatrends: innovations and sustainability.

Housing market factors may threaten sustainability goals by pushing out new settlements to low-quality locations, limiting greenery and small scale agriculture around cities and finally, promoting homogenous social structure of neighbourhoods. These trends are more potent in countries of growing economies while the higher average level of wealth enables new developments of better quality. It leads to the pessimistic constatation that the liberal economy characteristics define housing environment development frames.

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