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# The concept of sustainability in housing markets – challenges for Poland

## Koncepcja zrównoważonego rozwoju na rynkach mieszkaniowych – wyzwania dla Polski

**Abstract:** The aim of the article is to discuss selected aspects of sustainable development and the conditions for its implementation in relation to the housing market. A critical review of the literature will make it possible to distinguish the political implications that should be taken so that the current functioning of the real estate market does not burden the environment too much, which would enable it to meet the needs of present and future generations, but at the same time not hamper the development of the market and satisfy the needs of the society. According to the Polish real estate sector four groups of phenomena are discussed, namely: social problems related to the functioning of the sector, problems of real estate cycles and crises, spatial allocation of real estate and urban development, and ecological problems as key to the description of sustainable development.

**Keywords:** sustainable development, housing, social sustainability, environmentally sustainable housing, housing policy

**JEL classification:** O18, Q56, Q58

**Streszczenie:** Celem artykułu jest omówienie wybranych aspektów zrównoważonego rozwoju oraz warunków realizacji koncepcji w odniesieniu do rynku mieszkaniowego. Krytyczny przegląd literatury pozwolił wyodrębnić działania, jakie należy podjąć, aby obecne funkcjonowanie rynku nieruchomości nie obciążało nadmiernie otoczenia, co umożliwiłoby zaspokojenie potrzeb obecnych i przyszłych pokoleń, ale jednocześnie nie hamowałoby rozwoju rynku. W odniesieniu do polskiego sektora nieruchomości wyodrębnione zostały cztery grupy zjawisk: problemy społeczne, związane z funkcjonowaniem sektora, problemy cykli i kryzysów na rynku nieruchomości, przestrzenna alokacja nieruchomości i rozwój miast oraz problemy ekologiczne jako kluczowe dla opisu zrównoważonego rozwoju.

**Słowa kluczowe:** zrównoważony rozwój, rynek mieszkaniowy, zrównoważony rozwój społeczny, mieszkalnictwo zrównoważone środowiskowo, polityka mieszkaniowa.

**Kody JEL:** O18, Q56, Q58

A sustainable approach to economic development manifests itself in the ability to see the complexity of relations, connections and conditions in which economic entities have to function; in understanding the system of interactions between internal and external elements and the ability to search for the right proportions between the various dimensions of the activity: economic, social, ecological, technical, spatial etc. Such an approach to the problem falls within a broad interpretation of sustainable development. However, in economic research and business practice sustainable development issues are also analyzed from a narrow perspective – only from the perspective of environmental impact. In terms of ecological economy, the economic processes are subordinated to the preservation of the natural environment through the adoption of the principle that the natural environment is not subject to substitution. Even today, sustainable development is often identified with eco-development.

The concept of sustainable development is derived from previous ideas for sustainable forest management and the 20th century concerns for the environment. At the end of the 20th century, many studies on sustainable development appeared, and this topic became the subject of many legal regulations and development plans of state economies. It has been noticed that countries, especially those that have developed intensively economically, benefit from economic growth and put a burden on the environment by exploiting resources and causing high pollution as a consequence of this economic growth. Over the years, there has been an evolution in the perception of sustainable development, which was initially identified only with economic growth, while in the 1980s it was seen from the perspective of socio-economic development. A broader understanding of sustainable development as a comprehensive strategy of socio-economic development integrating the entire world's economic problems appeared in the 1990s. There are many definitions of sustainable development within legal acts, scientific studies, reports and recommendations. The most popular and cited definition of sustainable development comes from the Brundtland Report (1987) issued by the World Commission on Environment and Development: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their greater demands.” The idea of sustainable development, due to economic, social and ecological connections and interactions, should be considered from those three perspectives. According to the Brundtland Report, the concept of sustainable development has evolved to focus more on the goals of achieving “socially inclusive and environmentally sustainable economic growth”. In 1992, at

the United Nations Conference on Environment and Development, the Earth Charter was established, which set the goals of the 21st century to build a fair, sustainable and peaceful global society. The Agenda 21 implementation plan, adopted at the same conference, identified information, integration and active participation as key elements supporting countries in achieving sustainable development.

Pakulska and Poniatowska-Jaksch (2018) defined sustainable development in a broad sense as a permanent, sustainable and self-sustaining development. The researchers also emphasized that in the new paradigm of the sustainable development concept, in addition to social, economic and environmental issues, the importance of quality of life should also be taken into account. The concept of the permanent sustainable development focuses first on ecological threats, and then on no less important social problems. What is more, the increase in welfare, perceived through the prism of both the consumption of goods and the ecological living conditions, can also be regarded as the goal of sustainable development.

In 2015, in New York, 193 UN member states adopted the 2030 Agenda for Sustainable Development by a General Assembly Resolution, which included The Sustainable Development Goals. The UN's Sustainable Development Goals address 17 global challenges, including poverty, inequality, climate change, environmental degradation, peace and justice. Sustainable development aims to maintain global production processes in the long term by replacing the resources used with other resources without causing degradation of natural systems, so as not to burden future generations too much. Therefore, the important role of time is emphasized, as the effects of decisions are usually characterized by long-term consequences.

The interest of the public and researchers in sustainable development has grown significantly over the years. The review of the definitions also shows that the concept of sustainable development is a challenge from economic and also social perspectives. Sustainable development therefore combines concern for natural systems with social, political and economic issues. In the article we carry out a literature review and then distinguish main challenges in relation to sustainable development on the Polish real estate market.

## **The concept of sustainable development and the housing sector**

Housing as a good can be characterized historically and today as a technically simple product which satisfies the need for shelter and hardly changes over time or a very complex system of social relations. The housing sector and its functions can be viewed in the context of sustainable development from these two perspectives.

Firstly, in a narrow sense, as a physical structure, flats carry specific utilities, e.g. by fulfilling a residential function, they satisfy the need to provide shelter. A residential building as a structure is characterized by certain physical properties, spatial distribution and certain ecological interactions with the environment. Secondly, broadly, as a social structure, real estate provides additional utility such as access to infrastructure or other services, e.g. education, health, etc. Thus, built-up real estate enables socio-economic interactions with the closest communities and the wider society. This segment could also include economic relations that are nothing else than social relations related to the production, allocation, distribution and consumption of housing. Through both of these functions, housing represents a system of social, material or economic relations, which is at the same time ordered on various spatial scales.

Although housing is related to sustainable development in a number of important ways, it is one of the more neglected topics raised from this perspective. There is a very rich literature devoted to sustainable development, although the problems focusing on the real estate market and activities, most often institutional, undertaken for sustainable development of this sector, are very poorly understood. So far, the problem of sustainable development has rarely been developed from the real estate market perspective, which indicates a significant research gap that should be fulfilled. Real estates, although they are intuitively associated with a certain passivity and staticness towards the social and economic environment, have a very strong influence on them, often with negative consequences.

The idea of sustainable development in the context of the housing market, expressed in documents adopted by the governments of countries participating in United Nations conferences<sup>1</sup>, can be defined as striving to balance social, economic, natural and spatial factors in shaping the living conditions in the place of residence. The Sustainable Development Goals for housing were taken at the United Nations Conference on Human Settlements, namely the topic of providing shelter for people and sustainable city development. The conference ended with the approval of the Declaration of Istanbul, which set out ways of global cooperation to achieve the goals of sustainable development, focusing primarily on socio-economic issues, environmental protection and energy saving. As a result of the Habitat II Conference and the adopted Declaration of Istanbul, UN member states were obliged to develop action plans and monitor the degree of its implementation.<sup>2</sup> Also in the 2030 Agenda, approved in 2015 in New

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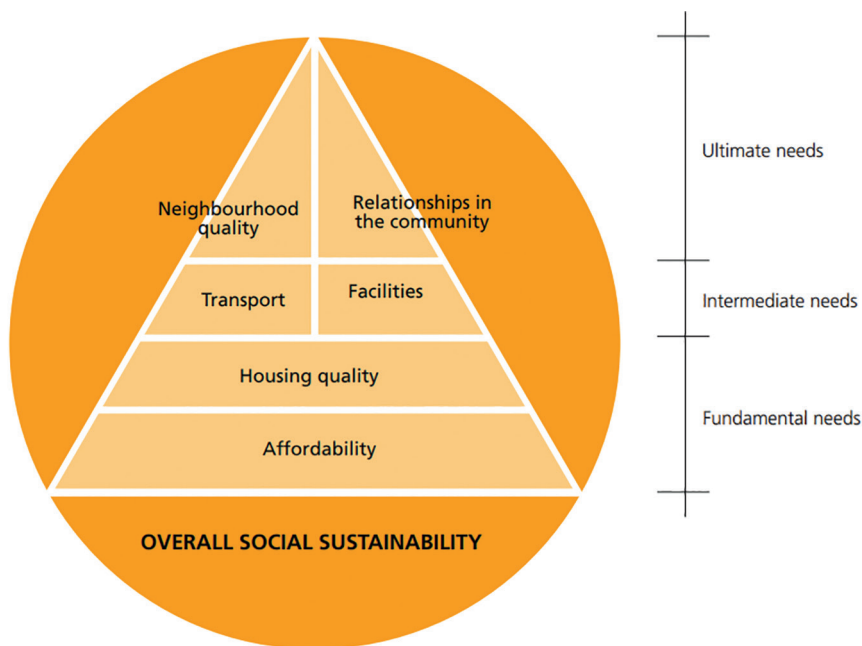
<sup>1</sup> Recommendations to Member States were the subject of the UN conference in Rio de Janeiro in 1992, and then they were written in the form of a document called Agenda 21.

<sup>2</sup> In Poland, imposed obligations were implemented by including provisions on sustainable development in the Constitution of the Republic of Poland, art. 75 and other legal acts (including the Act on spatial development, the Act on environmental protection).

York by the UN member states, as many as six specific goals concern and more or less affect the real estate market.

Housing is critical to meeting a basic human needs of shelter, but is also important to the social development of communities and societies. Historically, the housing policy was focused on meeting this basic housing needs, while nowadays, in highly developed countries, it must also meet higher-order housing needs, which include the needs related to the standard of the environment (neighborhood) and participation of individuals in social life. These needs include: transportation and amenities, as well as development of human and social capital (education, skills, health etc.), cohesion and well-being in communities and society as a whole (good relationships, security, community feeling). Necessary welfare facilities must be provided early in the life of new communities so that residents do not have to travel to them, and also develop ties with the place where they live. In the social aspect, the concept of sustainable development in the residential housing sector is also aimed at counteracting social exclusion resulting from poverty, unemployment or homelessness. Hence, housing is much more than simply building buildings and providing decent shelter, but it is about providing decent infrastructure and a dignified social life (see diagram 1).

**Diagram 1** Social aspect of sustainable development for residential real estate



Source: Ancell and Thompson-Fawcett (2008).

Sustainable development is increasingly related to the concepts of quality of life and wellbeing. The condition of the apartment is critical to quality of life, including structural and design elements such as moisture protection, sound insulation and energy efficiency. The quality of life also depends on various aspects of the environment – e.g. clean air, access to natural resources such as green spaces or water etc.

In addition, the limited supply of land with the constantly growing number of people in the near future may cause barriers on the supply side. Therefore, there is another aspect through which one should analyze residential real estate in the context of sustainable development – spatial and architectural problems. Urbanization is a permanent and irreversible process, and the city becomes, or has already become, the natural environment of people. The quality of citizens' everyday life depends on how it functions, what kind of social and technical infrastructure, communication and transport system it has, and how it performs other functions. The two most important effects of the phenomena described are construction disasters and urban sprawl.

The spatial and architectural aspect therefore concerns location as one of the key criteria for sustainable growth. Appropriate spatial planning regulations organize the arrangement of dwellings of various social groups, which prevents the formation of local ghettos in the urban structure. Another important aspect is the selection of adequate architectural forms that would ensure the comfort of life while fostering social contacts, and would increase care for the surroundings and the apartment. Therefore, institutions and organizations are established to promote the idea of sustainable development in the field of spatial and architectural problems, e.g. in 1977 Habitat set itself the goal of limiting the number of people living in slums.

The economic dimension of sustainable housing is due to the variety of economic implications of the existence of a housing system, primarily from the fact that:

- housing and infrastructure are among the most valuable and durable capital goods,
- housing is an important part of household and public spending,
- housing are among the key economic and employment-related activities.

The economic aspect of sustainable development in the context of housing markets relates primarily to the provision of affordable housing. Affordable housing contributes to economic development by stimulating economic growth through housing markets and house-building activities, reducing volatility in housing markets and generating employment and income from the consumption of housing services and the construction of buildings, and their multiplier effects in other sectors.

The need for affordable housing is particularly acute in developing regions. They experience rapid and continuous urbanization, driven by population growth and migration from rural to urban areas. The problems of creating poverty and access to energy have been successfully addressed in most developed countries, but there are still particular challenges arising from the number of apartments that need to be built or

renovated to address existing housing shortages – quantitatively and qualitatively. In addition, activities related to job creation are also emphasized, which may reduce the risk of unemployment and, in the second round – homelessness.

While the housing market is an important driver of the wider economy, unsustainable supply and demand for housing and limited affordability create problems in the housing market that generate ‘domino effects’ (ripple effects) through the economy and the financial system (Berry, 2006) and result in an increased cyclical nature of the market, and even economic crises. Macroeconomic policies that unduly favor private housing markets and home ownership may pose some problems. Too much concentration on home ownership contributes to market volatility. In the conditions of economic growth, banks are becoming more active in granting housing loans, which may result in increased demand and a sharp increase in real estate prices. In an economic downturn, home prices are falling, and many have ‘negative equity’ (their property values fall below their residual mortgage). As many low-income people may not be able to pay off their loan obligations during this period, they will lose their already accumulated capital in real estate investments as a consequence. All of this is exacerbating social inequalities and, at the same time, leading to homelessness. Moreover, when the majority’s incomes are used to pay off mortgage loans, household disposable income available for other goods and services shrinks, with negative consequences for aggregate demand in the economy, further exacerbating the overall economic downturn.

The ecological aspect of sustainable development in the context of residential real estate is also often emphasized (Safranova et al., 2017). It concerns the natural environment and its sustainability, diversity and productivity, primarily natural resources derived from the environment, i.e. the air, water and climate. More and more often, the aspect of the negative impact of the elements of the housing market on the environment is emphasized. On the one hand, housing construction and exploitation consume large amounts of natural resources (land, energy, water, building materials), while generating waste and polluting the air and water. On the other hand, residential properties themselves are exposed to a variety of environmental impacts and risks, including those related to natural disasters and climate change. Golubchikov and Badyina (2012) distinguish three types of relationship between the housings and the environment:

- housings requires different environmental resources such as building materials, water, energy and land;
- housing activities in human settlements have a direct ecological impact on local areas in terms of air and water pollution, waste and damage to natural ecosystems;
- homes and their tenants are also exposed to various environmental hazards that may arise from human activity (e.g. air and water pollution).

The impact on financial stability and wealth distribution is becoming an increasingly popular research topic for economists (Ferentinos et al., 2021). However, there

should be more focus on the indirect impact of the temperature increase on financial markets (flooding low-lying areas with credited real estate).

In the field of environmental protection, the issue of energy efficiency is raised, which is extremely important within the concept of sustainable development. At the local level, it is related to the compliance with standards at the building or apartment level by designing solutions for rational energy consumption using adequate types of technical infrastructure devices, tightness of openings and appropriate construction materials. An innovative approach and the use of alternative technologies (3D printers, smart houses) play an important role. In addition, strategies to improve environmental sustainability in housing include:

- reducing the environmental footprint of housing;
- providing healthy housing and the surrounding living environment;
- strengthen resilience (preventing natural disasters, caring for green areas).

Often the mentioned aspects intertwine and connect with each other. For example, the ecological stability of human settlements is part of the relationship between people and their natural, social and built environment. The changes taking place on the real estate market are significantly influenced by institutions and the behavior of market participants. Typically, the social, cultural, environmental and economic aspects of housing are not dealt with in an integrated manner. For example, affordable housing is commonly considered in terms of cost, while environmental and social issues as well as economic impacts are analyzed separately or are completely ignored. Ignoring the integrity of the dimensions of sustainable development only leads to an accumulation of weaknesses in the housing sector. The implementation of the concept of sustainable development requires the participation and cooperation of many entities as well as actions at various levels of government with the involvement of market entities.

## **Challenges on the Polish residential real estate market and sustainable development**

A wide range of types of real estate causes a large scale of problems that real estate generates. In general, residential properties, including those located in cities, are in the foreground. It is related to their great value as well as social and political issues. In addition, the apartment has specific features: relatively high unit price, limited supply, durability and non-transferability. However, specificity of housing does not contradict the operation of basic economic laws. Based on the literature research to date and own observations, it is possible to indicate the main challenges for sustainable development related to the Polish real estate sector. These challenges are both purely cogni-



tive and applied in nature, as they relate to significant economic and social problems, that should be solved by state policy.

The first group consists of challenges related to urbanization and meeting housing needs. A characteristic feature of modern civilization is rapid urbanization, which causes many social problems related to satisfying housing needs, which is related to the social aspect of sustainable development. Moreover, especially in developing countries, there are large migrations towards larger urban centers, and hence rapid urbanization, which causes many problems, both social, related to satisfying housing needs, and related to environmental protection. There are few comprehensive and up-to-date studies and analyzes of the housing preferences of Polish households and the degree of satisfaction of housing needs.

Historical events have a great influence on the current shape of the Polish residential real estate market and its level of development in relation to other European countries. The devastation after World War II<sup>3</sup> and the decades of Soviet control over Poland left its mark on the morphology of Polish cities and significantly determined the city's housing resources in the long term. The reconstruction of post-war Poland in the conditions of socialist construction organization and financing structure was an extremely difficult task. The low level of development of the country and war damage were combined with very dynamic demographic processes (including high population growth, migrations to cities), which worsened the already difficult housing situation. In the case of the centrally planned economy, the production forces focused mainly on industry, transport and agriculture, which limited investment in housing. Poor satisfaction of housing needs was also due to the fact that factors of production, including land, were not allocated according to market rules, but through decrees. Housing from that period had many features characteristic of apartments functioning in Soviet societies: small size, limited number of rooms, similar architecture of buildings (mass construction of homogeneous objects, tall blocks away from the center). The transition to a market economy took place in the conditions of a large shortage of housing, galloping inflation, a lack of accumulated investment capital and very low household's incomes. The adaptation of the real estate sector, especially housing, to the standards of a developed market economy was associated with high social costs, institutional shortcomings, including an underdeveloped financial system, as well as the lack of experience and skills of public institutions in the field of spatial planning (Łaszek and Waszczuk, 2021).

It can be assessed that the housing sector in Poland has been operating in free market conditions since 2000, when inflation fell and the required regulatory changes were introduced (Kucharska-Stasiak and Matysiak, 2004). The average housing saturation

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<sup>3</sup> In Warsaw, about 80–90% of buildings have been destroyed, torn down or burnt (Ciborowski, 1969).

for the 26 selected countries for which data was available at two time points – from 2010 and 2018, amounted to approximately 467 apartments per 1000 inhabitants and 484 apartments per 1000 inhabitants, respectively. In 2010, Poland was in the last position in terms of the quantitative satisfaction of housing needs, with the indicator amounting to 350 apartments per 1000 inhabitants. In turn, in 2017 this indicator increased to 376 apartments per 1000 inhabitants, which indicates a gradual improvement in housing conditions, although this is still much lower than in developed countries and other Central and Eastern European countries.<sup>4</sup>

The quality of housing resources, which is largely a legacy from the socialist times, also performs worse than in Western Europe. The analysis of the housing standard is complex and can be made using many variables, incl. layout of the apartment, equipment with installations, furnishings, technical condition, etc. The lack of basic installations is still present in apartments in the largest cities and mainly concerns pre-war buildings. In old residential buildings, usually located in the city center, apartments without access to water and sewage systems still can be found, which is not in line with contemporary consumer requirements. In 2017, the housing deprivation index<sup>5</sup>, which is an indicator of the housing situation of the population, according to OECD, among households with the first income quartile was around 4.6%, and in the third quartile – 0.8%. With such a value of the index in both income groups, Poland was ranked fifth in Europe – after Bulgaria, Lithuania, Latvia and Hungary.<sup>6</sup>

In Poland, in addition to the issues related to the quantitative and qualitative satisfaction of housing needs, there are also problems with the modernization of the existing housing resources, including flats built with the use of large-panel technology. The buildings of Polish cities are not homogeneous, therefore the concepts of its city expansion require an individual approach, which makes it difficult to implement standardized solutions. Although at present the state of knowledge is richer by over

<sup>4</sup> OECD, *Affordable Housing Database, Housing market*, <http://www.oecd.org/social/affordable-housing-database/housing-market/> (access on: 20.02.2021).

<sup>5</sup> According to the OECD definition, housing deprivation means the presence of two conditions at the same time: overcrowding and the lack of a flush internal toilet. The overcrowding rate, which takes into account the age-gender structure of household members and minimum housing requirements, also shows relatively poor coverage of housing needs. According to the Eurostat methodology, housing conditions may be considered overcrowded if the household does not have a minimum of: one room for a couple of people in the household, one room for each single person aged 18 years or more, one room for a couple of people same-sex aged 12–17, one room for each person between 12 and 17 years of age, and of a different sex, one room for each pair of children under the age of 12. Eurostat, *Overcrowding rate by age, sex and poverty status – total population – EU-SILC survey [ilc\_lwho05a]*, <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180612-1> (access on: 17.07.2020).

<sup>6</sup> OECD, *Affordable Housing Database, Housing market*, <http://www.oecd.org/social/affordable-housing-database/housing-market/> (access on: 20.02.2021).

a hundred years of experience in urbanization and housing policy, many problems related to meeting housing needs remain unresolved.

Nowadays, the deficit of flats and, consequently, poor satisfaction of housing needs, in the conditions of economic development and growing income, generate a large consumer demand for flats. A factor that additionally affects the increased housing demand is also the demographic, economic and social situation. Currently, in developed countries there are more and more one-person households or small, two- or three-person households that prefer larger flats than one or two rooms and of better quality. Therefore, there is a demand for apartments of an adequately large size and of a higher standard, which also generates pressure on the increase in prices, and then reduces the availability of apartments.

There is also a second way of environmental impact of real estate related to the limited supply of land, which determines the development of cities and creates challenges related to the spatial shape of the city and the quality of its buildings. This type of impact of real estate on the environment is the result of the permanent connection of the buildings with the land and the land-intensity of this sector. The problems of the land monopoly and the related land rent<sup>7</sup> are well known in agricultural production. However, the accumulation of capital in urban centers is incomparably greater to that known from agricultural production and, consequently, the scale of “spatial” problems related to urban development is much greater. These include uncontrolled urban sprawl, which leads to a deterioration of the quality of life in the city (long commuting time, environmental pollution) and an increase in the city’s operating costs. This issue is largely related to the problems of rapid urbanization discussed earlier in this chapter. However, traditionally in the literature, the analysis of the housing situation and the related problems of the sociology of cities, have always been discussed regardless of the issues of urbanization and the economy of the city, while the issues of spatial shape and the economy of the city have traditionally been the domain of urban economics, especially in Anglo-Saxon countries.

Another challenge in the context of the sustainable development of the real estate market is the cyclical development of this sector, often leading to the real estate crises. In addition, it also increases social problems and affects the waste of natural resources. This applies to residential real estate and commercial (generating income), which together constitute up to approx. 2–3 times the GDP (NBP, 2021). Since real estate is largely financed with foreign capital, the debt related to the real estate market often exceeds 100% of GDP and their financing is distributed between the capital market and the banking sector. Consequently, the real estate market is strongly related to the

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<sup>7</sup> As part of the issues of spatial development of cities, research is carried out on contemporary problems of land rent – e.g. Łaszek and Waszczuk (2021); Ryan-Collins et al. (2017); etc.

financial cycle, which is one of the main reasons for generating cycles and, in extreme cases, crises with broad economic and social consequences.<sup>8</sup> Historical experience shows that from the perspective of the stability of the financial sector and the economy, the main problem is commercial real estate (office, hotel, retail, service and logistics). Cycles in these markets are frequent, but the economic consequences are smaller due to the smaller scale of this subsector. Housing crises, causing social crises in addition to economic ones, are much rarer, but usually stronger. These two markets can be related and nowadays we can observe globalization of cycles that were previously largely local in nature. We are currently on the brink of another collapse in these markets, which will affect both developing and developed countries. It is worth noting that public policy aimed at mitigating climate change may involve a temporary risk in the form of sudden adjustments in real estate prices.

Another challenge is the environmental pollution generated by cities and housing and the prevention of them. Housing is responsible for a significant proportion of greenhouse gas emissions, around 15% in developed economies, making a significant contribution to climate change. It seems that this aspect in Polish reality is insufficiently addressed in practice, despite the fact that in theory it has been developing rapidly for several years. It is related to new solutions in the field of insulation, heating of buildings, or intelligent control systems, often known as intelligent buildings. Some progress has also been made in the construction of buildings, although this area remains fairly constant and conservative.

Anticipating the effects of a particular course of action breaks down the interconnectedness of different economies and the environment that may be affected by the course of action chosen. Sometimes, the anticipation of various outcomes of an action is hampered by unexpected consequences and the number of unknown connections.

## Policy implications

The apartment is a very important aspect of the quality of life and, consequently, is also important for sustainable development. In the housing sector, solutions may be introduced in at least three areas of sustainable development:

- social (development of the city as a functional unit, activities related to functioning of economic entities in society – social inclusion);
- ecological (housing construction – green location, use of building materials and technologies, surroundings, use of green technologies, energy consumption, etc.);

<sup>8</sup> In Polish literature, it is the research related to the cyclical nature of the real estate sector that is the most fully, comprehensively and multidimensionally examined, among others by: Augustyniak et al. (2021); Brzezicka et al. (2021); etc.

- economic (of an adequate quantity and quality of housing resources – allocation indicators, reliability, ergonomics, safety, aesthetics and availability of affordable housing).

In line with the holistic vision of development, sustainable development is a balance of all its dimensions: environmental, social and economic, which means adopting an interdisciplinary approach, characterized by dialogue and sectoral interaction between public authorities, private individuals and civil society organizations. Institutions play an increasing role in creating sustainable development policies, both at the macro- and micro-economic level. They shape and co-shape, among others rules relating to social matters, environmental protection, individual development and the competitiveness of enterprises. One of the key tools for influencing institutions in the context of implementing the principles of sustainable development are those related to information, including the sharing of knowledge and good practices.

The homeownership structure also plays an important role in the sustainable development of the housing system. The modern doctrine is based on a multi-sectoral approach with the primacy of owner-occupied dwellings. This system is liquidity supported by dedicated mortgage lending systems and socially supported by subsidized housing segments with an intermediate form of ownership and housing allowances. Development towards sustainable housing will therefore consist in moving towards a more social nature of the housing market. An additional problem is the housing production system, i.e. housing construction. The literature rather agrees that it should have a market character with as strong competition as possible, regardless of who is will be the home-user or homeowner.

As part of the economic aspect of sustainable development on the residential real estate market, solutions should be analyzed on a multi-layered basis. Currently, the dominant supply of the private sector, supported by high housing ownership ratios, mainly meets the needs of people in the higher segment of the housing market, thus worsening the housing, economic and poverty situation in many countries. On the contrary, rental housing remains a neglected policy option in developing countries – even though most city dwellers live there today and will continue to live there in the future. While there are no one-size-fits-all solutions, strategies to improve housing affordability include:

- regulations and incentives for the construction and real estate market,
- subsidies and other types of housing assistance,
- development of an affordable mortgage market and alternative financial systems,
- construction of council housing and incentives for community, cooperatives, etc.,
- modification of building codes, regulations and procedures,
- partnerships between entities: local and central authorities, private companies etc.

In a market economy, the market should have a diversified offer for households with adequate incomes. Support with public funds is required by poorer households, e.g. through the system of building flats for rent by special, non-profit entities called social housing associations or transferring public funds to the National Housing Fund run by BGK, from which TBSs that build flats for rent are credited. with relatively low rents and intended at most for average earners. This system is based on similar French or British solutions.

Sustainable urban development in the ecological aspect means creating a certain level of ecosystem improvement, developing certain standards for access to clean air, water, delivery of sanitary infrastructure, etc. Housing is responsible for a significant part of greenhouse gas emissions, which makes a great contribution to climate change. These effects should be limited. An example of a solution introduced in another country is the 2018 Minimum Energy Efficiency Standard Initiative, which entered into force in England and Wales on April 1, 2018 under the Energy Efficiency 2015 regulations (UK Statutory Instruments, 2015). It aims to reduce greenhouse gas emissions caused by the UK housing market due to the high energy consumption of building stock. Improving the energy and environmental efficiency of the economy will ensure the rational and adequate use of energy and power resources. In addition to housing, the implementation of measures should cover such sectors as electric power engineering, construction, municipal services and transport. Subsequently, mechanisms should be created to strengthen the responsibility of economic entities for non-compliance with the standards of acceptable environmental impact and incentives for entities using energy-saving and green technologies. The use of more energy-saving technologies can also low operating costs of real estate for businesses and households.

Standards, including ISO standards, are an effective tool that provides information on how to achieve the SDGs, and they constitute a mechanism for the exchange of best practices. New standards are published or developed to address difficult issues such as social responsibility, climate change response, energy efficiency and renewable resources, sustainable construction, fair and transparent procurement, water services, nanotechnologies, intelligent transport systems, food safety management and health information technology (ISO, 2012).

Unfortunately, removing market failures and barriers to improving energy efficiency brings with it a number of side threads. First, when the property is modernized, the cost falls to the owner, but the benefits of lower energy costs and a warmer home fall on the tenant. The landlord does not necessarily have the option to increase the rent to compensate for the costs incurred. So there is a fear of inadequate incentives, and homeowners have no incentive to renovate. Moreover, the change brings about a number of public health benefits from better housing conditions that do not fully accrue to those who pay for energy efficiency improvements. The internationalization

of external costs, which consists in forcing the inclusion of costs caused by it in its economic calculation or the inclusion of benefits taking into account the concept of the optimal level of environmental pollution, was initiated by Pigou and Coase. It is possible to implement the policy of sustainable development by protecting natural capital in accordance with the principle of economization – that is, by implementing a policy aimed at minimizing social costs. This principle in OECD and EU countries is usually combined with several practical principles, including, in particular, the “polluter pays” principle and the “injured” principle (e.g. by voluntarily involving the victims in the implementation of environmental protection tasks, or by subsidizing protective measures using public funds). An important issue is the role of institutions in regulating the processes of shifting economic, environmental and social burdens from one economic entity to another.

In addition, it is also necessary to develop a solid financial infrastructure for green housing technologies. This includes a transparent system of subsidies, grants, loans, public investment programs and leasing, as well as self-sustaining sources of financing (e.g. funds in renewable energy sources). Such instruments should target relevant stakeholders, including owners, tenants, builders, technology producers and retailers. Information about such financial instruments must be understandable and easily accessible.

Public policies to mitigate climate change may pose a temporary risk of sudden adjustments in asset prices, in particular in property prices. Ferentinos et al. (2021) state that in the literature there is no evidence of an adjustment of house prices to climate policy, but this may be partly due to scarce data and the fact that transition risks may not materialize yet. Ferentinos et al. (2021) find that a policy intervention in the UK addressing greenhouse gas emissions in the housing market had a negative impact on transaction prices. This allowed them to conclude that the market is relatively efficient. Such asset price adjustments are referred to in the literature as the transition risk of climate change (Carney, 2015), which may pose some risk to financial stability. Conducting an appropriate climate policy may reduce this risk and change the possible consequences, which makes it even more difficult to estimate the impact of regulatory changes.

In order to ensure multidimensional sustainable development in already developed and often degraded areas, they should be regenerated and put back into use for specific functions. Revitalization in a given area should be systematically implemented and assessed in two further areas: environmental development, aimed at improving the environment, and the political and institutional aspect, guaranteeing the implementation of the adopted strategies and plans in legal (legislation) and organizational terms. Revitalization is: “a coordinated process, carried out jointly by the local government, local community and other participants, being an element of development policy and aimed at counteracting the degradation of urbanized space, crisis

phenomena (...)” (see Ziobrowski and Jarczewski, 2010). From the point of view of sustainable development, revitalization is generally related to the transformation of degraded areas in three areas, that is: economic development (e.g. new jobs creation), social development (prevention of social pathologies) and infrastructural and spatial development (preservation of cultural heritage through renovation, modernization and maintenance of historic buildings and public spaces, and improvement of the natural environment). Unfortunately revitalization programs, despite many beneficial effects, are primarily being used to the material and technical sphere of cities and the financing of various and often unrelated investment projects, which is not in line with the idea of sustainable development.

In the case of revitalized areas, there is a potential risk that the revitalization program will not have a real impact on the elimination of poverty areas in the city. It can be accused that the revitalization programs do not take into account in-depth activities in the social sphere regarding counteracting poverty enclaves. Unfortunately, usually the lack of indicators taking into account the comprehensive impact of the revitalized area on the adjacent areas results from the structure of the program itself. The selection of the revitalization area also affects the adjacent areas, so it should take into account public consultations, economic and environmental analysis, investment financing, and monitoring of implementation and effects of revitalization. The principle of sustainable development should be implemented at the stage of programming, planning and designing revitalization processes. A long, at least 15–25 years’ time horizon of revitalization activities is important.

Research and innovations are integral elements of sustainable development. It aims to define and implement a transition agenda to greening the economy and society as a whole in order to achieve true sustainable development. A promising direction towards sustainability is the design of systems that are flexible and reversible. Nevertheless, in addition to developing technological concepts, it is also important to work on the conceptual and theoretical basis on the quantification of individual aspects of sustainable development. Unfortunately, housing market indicators are underdeveloped and more attention should be paid to the importance of housing aspects to sustainable development and to its quantification.

## Conclusions

Achieving the Sustainable Development Goals is important because business focused on profits will not bring about changes in the economy so as not to burden future generations. The economic model of modern countries requires profound structural changes to achieve these goals. Today, many of the world’s natural resources have been



depleted and economic and social imbalances have accumulated. Following the old schemes assuming rapid development, i.e. a few percent economic growth, may turn out to be in contradiction with actions taken for sustainable development. The challenge is to take action over the long term – at least for the next generation or beyond. However, it is not clear what sustainable development should mean in today's conditions, what aspects and to what extent it should concern, and whether it is able to ensure the survival of humanity in today's demographic and strictly ecological tensions.

Housing is a sector in which the concepts of sustainable development of the sector have been discussed and introduced to a limited extent for at least several dozen years. At the same time, the housing sector has a significant negative impact on the ecosystem. Although the concept of sustainable housing is often seen from a “green” perspective (saving resources, reducing greenhouse gases), a more holistic approach, taking into account the multiple functions of housing – both as a physical and social system, seems to better reflect the definition of sustainable development itself. Therefore, the question arises whether in the present period of growing such strong ecological and demographic tensions, environmental protection issues should not be given an absolute priority, which would mean reducing the aspects understood as sustainable housing, where protection of the human natural environment is one of the goals next to the bundle of social and economic goals. There is no doubt that the creation of a socially, spatially and functionally sustainable sector will have a significant, positive impact on its ecological character. However, the question arises whether we still have time and resources to optimize social and economic welfare and whether some prioritization should not be imposed, focusing primarily on narrowly understood ecological goals.

In Poland four groups of narrower key objectives have been distinguished to describe the issues of sustainable development in the real estate sector, i.e. social problems related to the functioning of the sector, problems of real estate cycles and crises, spatial allocation of real estate and urban areas, as well as ecological aspects related to the construction and operation of buildings and the economics of entire urban complexes.

A critical review of the literature leads to the conclusion that the classic tools of economic policy and the associated positive scenarios for the sector's development have run out. It seems unrealistic to maintain a good-quality natural environment and the associated living environment in a non-deteriorated condition for future generations. The contemporary, uncontrolled demographic and urbanization development makes us see this problem as a necessity to minimize potential losses.

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