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## THE IMPORTANCE OF EMPTY SPACES IN CITIES AND A PROPOSED SET OF TOOLS TO SUPPORT THEIR USE

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## ZNACZENIE PUSTYCH PRZESTRZENI W MIASTACH I PROPOZYCJA NARZĘDZI WSPIERAJĄCYCH ICH WYKORZYSTANIE

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**Summary:** The progressive urbanism and population density of the modern world, along with the degradation of the natural environment, have caused a radical disappearance of vacant urban spaces. For this reason the importance of undeveloped, open spaces located in urban areas has increased. The development potential of empty spaces should be reasonably assessed, and thereby their use should be considered – as an element of compact urban fabric or a reserve of space for the future. The goal of the article is to discuss and evaluate the role of empty areas in cities in terms of economic, social and environmental impacts, as well as to provide a universal toolset in the field of spatial planning that can be utilized to secure the value, and maintain control over the management of empty spaces. The object of the study is Wrocław with particular emphasis on undeveloped urban land. The research covered, depending on the available data, the period 2010-2018. The work uses a deductive method, simple statistical methods, results of research carried out so far and a reinterpretation of available scientific literature. The article is an introduction to considerations on the impact of empty urban spaces on the socio-economic development of modern cities.

**Keywords:** empty urban space, temporary development, city development, economic aspects, social aspects, environmental aspects.

**Streszczenie:** Postępująca urbanizacja, zagęszczenie współczesnego świata i towarzysząca tym zjawiskom degradacja środowiska naturalnego spowodowały zanikanie wolnych przestrzeni miejskich i wzrost znaczenia niezabudowanej, otwartej przestrzeni znajdującej się w obszarach zurbanizowanych. Należy realnie ocenić potencjał rozwojowy pustych przestrzeni, a także rozważyć sposób ich

wykorzystania jako elementu zwartej tkanki miejskiej lub rezerwy miejsca na przyszłość. Cele artykułu to omówienie i ocena roli pustych terenów w miastach w aspektach ekonomicznym, społecznym oraz środowiskowym, a także zdefiniowanie uniwersalnych narzędzi planowania przestrzennego, które mogą zostać wykorzystane do ochrony wartości i kontroli wykorzystywania pustych przestrzeni. Przedmiotem badania jest Wrocław ze szczególnym uwzględnieniem gruntów zurbanizowanych niezabudowanych. Badaniem objęto, w miarę dostępności danych, okres 2010–2018. Wykorzystano metodę dedukcyjną, proste metody statystyczne, dotychczas przeprowadzone badania oraz reinterpretację dostępnej literatury naukowej. Artykuł stanowi wstęp do rozważań na temat wpływu pustych przestrzeni miejskich na rozwój społeczno-gospodarczy współczesnych miast.

**Słowa kluczowe:** pusta przestrzeń, tymczasowe zagospodarowanie, rozwój miasta, aspekty ekonomiczne, aspekty społeczne, aspekty środowiskowe.

## 1. Introduction

Modern cities are facing immense challenges in terms of sustainable development. Such as securing good and healthy living conditions, providing sufficient infrastructure, rational and effective management of resources, preserving biodiversity and cultural heritage, maintaining social balance, providing access to basic services and public spaces, as well as enabling the participation of residents in the urban development process. In the face of these challenges, it is vital to develop solutions that would balance the pace and intensity of urban transformation and prevent the disappearance of space at the same time (Goldstein, Jensen, and Reiskin 2001).

Empty spaces (i.e. undeveloped areas, wastelands, open or green spaces) are becoming increasingly popular subjects of discussions in the context of urban densification (Gunwoo, 2016; Kim, Miller, and Nowak 2018). The need to secure that kind of areas as valuable resources as well as the importance of providing basic infrastructure, are conditions for a sustainable urban development breakthrough in public awareness. There is no one single solution or universal approach to the optimal utilization of empty urban spaces. Each case should be considered individually. City officials can experiment and conduct various activities to activate these areas, such as building developments, assigning temporary use, or the creation of new functions and usages. Due to the lack of undeveloped, open areas in cities, empty spaces should not be over-commercialized and institutionalized. Therefore it is necessary to assess the real demand for vacant space and protect its value (e.g. through adaptability and flexibility).

The utilization of empty areas is a sequence of planned actions with the aim of the elevation of the cities both in the economic and social spheres. This would lead to a change in functional and spatial structures of the city. Depending on how the empty spaces are being used, it could stimulate local development in three areas: economic, social and environmental.

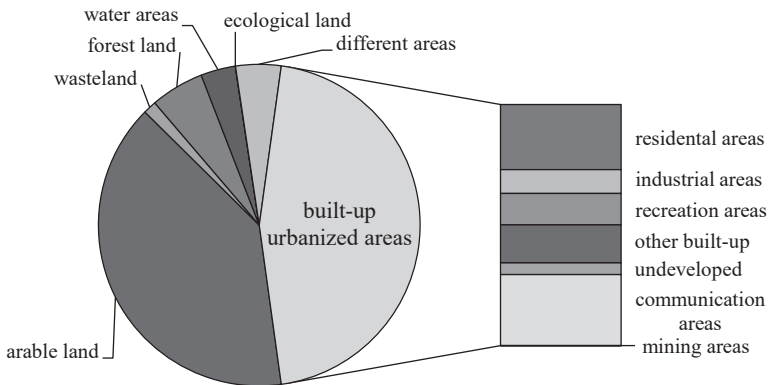
## 2. Analysis of the urban space of Wroclaw

### 2.1. Directions of land use

Space is a limited resource, of a strictly defined volume, without the possibility of multiplication. The natural consequences of its character are intensive competition and conflicts in the process of its development in the economic, social and ecological spheres.

The phenomenon of the disappearance of empty undeveloped space is most noticeable in cities with a high level of urbanization. An example is the city of Wroclaw (see Figure 1). Built-up and urbanized land in this particular case accounts for almost half of the city's total area, where residential areas are 27.0% of the urbanized land and transport areas are 29.4%. Urbanized areas that have not been built up represent only 2.2% of the total city area. Green lands, including forests and ecological grassland, are 5.4% of the total area.

Considering the changes which took place in the spatial structure in Wroclaw from 2012 to 2017, the most significant increase in land area (expressed in ha) can be observed among transport areas (an increase of 25.6%) and residential areas (by 10.8%). Over the analyzed years, the area of recreational and leisure areas (increase by 4.0%) and other built-up areas (increase by 5.2%) also increased. On the other hand, the largest decrease was recorded among various areas (decrease by 19.7%) and urbanized undeveloped areas (decrease by 14.2%).



**Figure 1.** Structure of land use in Wroclaw (2017)

Source: own elaboration based on data from Local Data Bank of Statistics Poland.

The example of Wroclaw presented above is only a small fraction of the analysis of urban spaces, but on its basis the author aims to present the tendency to transform the space of an urbanized city. Although in the analysis of the whole country the

ratio of built-up areas to empty and natural areas does not seem to threaten the future of urban space, the situation is different in the case of a city with a high degree of urbanization, especially in the face of demographic forecasts. Based on the above analysis, it can be observed that in the analyzed case of the city of Wrocław there is a significant disappearance of free, undeveloped and green spaces in favour of built-up areas, i.e. residential, transport and recreation and leisure areas.

Although the spatial aspects seem to be less important in the face of the economic or social aspects, the strength of their co-interference is very high and cannot be ignored. The quality of urban space is an important factor influencing the building of a positive image of the city related to the level of investment and settlement attractiveness.

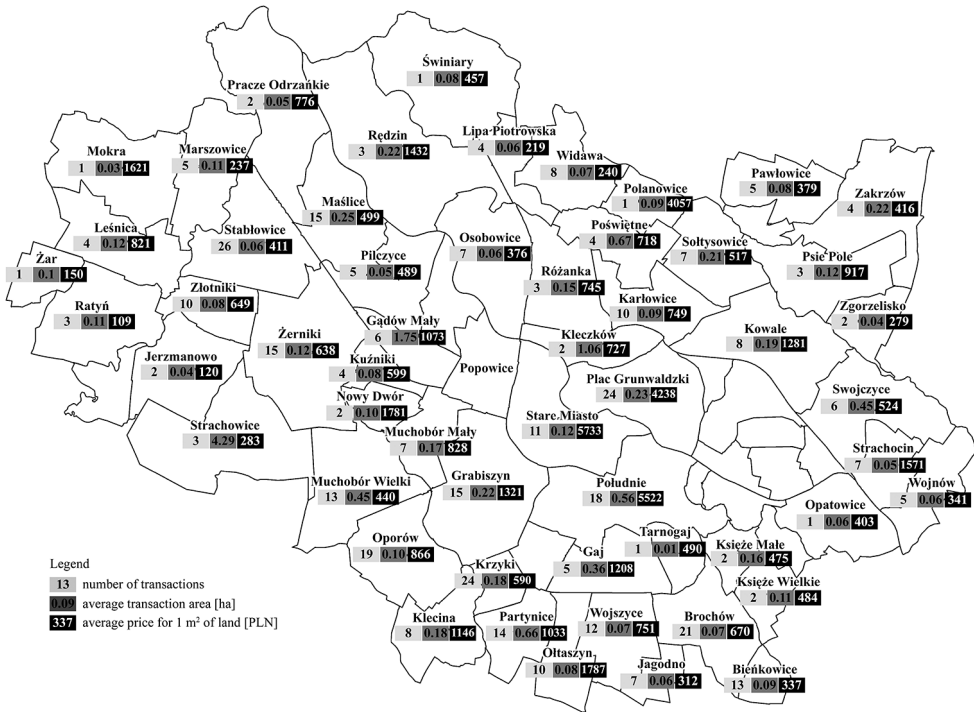
## 2.2. Directions of land use

The potential for the optimal use of the vanishing empty space is perfectly reflected in its economic value, expressed in real estate prices. The basic spatial database for real estate is the 'powiat' register of land and buildings. The register of real estate prices and values is its integral element. Data for the register are derived from notary deeds of purchase/sale of real estate and excerpts from appraisal reports provided by property appraisers.

Based on the Register of Real Estate Prices and Values, maintained by The Board of the Geodesy, Cartography and City Cadastre in Wrocław, a set of data on transaction prices of land properties in the city of Wrocław in the period 2010-2018 was selected. The scope of data was narrowed down to urbanized undeveloped land. In total, 427 transactions were selected using the defined criteria. The collected information was used to perform a statistical analysis of the local market of the undeveloped land property of the city of Wrocław, broken down by geodesic precincts.

The study compares data on the number of transactions, land properties areas and the average price in the purchase/sale transaction for 1m<sup>2</sup> of urbanized undeveloped land for the period 2010-2018, and the average transaction area for an individual geodesic precinct was also calculated (see Figure 2).

Analysis of the transaction prices of the studied area leads to the observation that prices are decreasing in areas situated towards the outskirts of Wrocław. The southern part of the city, where dynamically developing housing investments can be observed, is an exception. In addition to location, the amount of transaction prices is also affected by the use of the area and existing buildings, by the analyzed notarial deeds. The highest average transaction prices for 1 m<sup>2</sup> of undeveloped urban land were observed in the following regions: Południe, Stare Miasto, and Plac Grunwaldzki. The high transaction prices are due to the central location of these areas. There is also a high number of transactions in these zones even though the prices are high, which is a symptom of increased market competition in these areas. In terms of total area of the property that are the subject of the transactions recorded, Strachowice, Gądów Mały, Południe and Partynice clearly stand out.

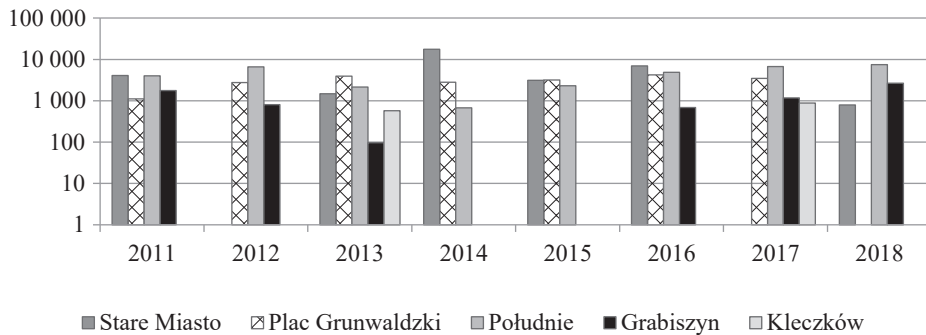


**Figure 2.** Urbanized undeveloped areas – number of transactions, average transaction price, the average price per m<sup>2</sup>, broken down into Wrocław geodesic precincts (2010-2018)

Source: own study based on the Register of Real Estate Prices and Values.

The following geodesic precincts are compared: Stare Miasto, Plac Grunwaldzki, Południe, Grabiszyn and Kleczków (see Figure 3). The largest number of transactions in urban areas not built up in the analyzed time can be observed in Plac Grunwaldzki (24 transactions), and then in Południe (18 transactions). In Kleczków, on the other hand, two purchase/sale transactions were made, however, the area of land per transaction was the largest in this area. A growing trend in the number of transactions can be seen in all the analyzed central geodesic precincts.

It is worth pointing out the significant difference between the price of land of various types: 1m<sup>2</sup> of residential land in the analyzed period is about three times more expensive than undeveloped land. The analysis of prices for the center of Wrocław leads to the observation that the average price for 1m<sup>2</sup> in Stare Miasto for residential areas is PLN 10,338, and for undeveloped areas PLN 5,773. A noticeable difference can also be observed in the number of transactions that were concluded. Almost 4.7 times more transactions were concluded for residential areas than for undeveloped areas within the analyzed period.



**Figure 3.** The average price (PLN) for 1m<sup>2</sup> of urbanized undeveloped areas of the central part of Wrocław (2011-2018)

Source: own study based on the Register of Real Estate Prices and Values.

Analysis of urbanized undeveloped real estate in the city of Wrocław in the period 2010-2018 showed that high-value transactions focused around the centre. The subjects of the transaction are usually small areas of land designated in the plans for single-family housing (almost 84% of geodesic precincts are below the average area per transaction calculated for the entire city).

### 3. Empty space as potential development of the city

The appropriate use of space is highly determined by spatial planning. Its main goal is the proper management and organization of space in a coordinated and harmonized manner while considering social expectations and environmental needs (Gunwoo, 2016). Open urban spaces are valued not only for the social and ecological aspects but more often also as a source of economic benefits. Among others, they can be treated as a means of counteracting migration out of the cities and are an important factor in attracting people to settle there.

Over a short period, care for the social and ecological aspects of space might turn out to be unfavorable for its economic values. However, in the long-term perspective (decades) the space that takes social needs into account, which was developed with the preservation of spatial order and a well-kept natural environment, will be the attributes of high-quality space, which will increase its economic value (Hermann, 2013).

#### 3.1. Economic aspect

In starting a discussion on the importance of urban open spaces and their economic effect, it is important to find out what types of open spaces are being appreciated by society and what their economic benefits are.

It is difficult to measure the appreciation of open urban areas because they are a public good, so their market prices are not available. However, there are special methods for estimating the economic value of non-market goods, which are based on two methodological approaches: stated preferences (surveys on the individual preferences conducted by asking people directly about their willingness to pay for certain goods) and revealed preferences (analysis of the relationship between goods on the private market and public goods and inferring the value of a public good based on the price of a private good).

The methods described above were used by Luther and Gruehn (2008) in their research on the economic estimation of urban open spaces in European cities. They proved that both the greater and better quality of open spaces in a given area have a positive impact on land prices. Studies have revealed that the extent of land values is dependent on the distance of these lands from an open space in the neighborhood. Comparing the average values of real estate, it can be proved that land prices decrease as the distance from the open space increases. The average value of a property located less than 400 m from open spaces is over 63% higher than the average value of land located beyond this distance.

Data analysis also revealed that prices for land in the locations with a high-density of gardens are significantly higher than for those with a lower density (the land price difference is almost 20% dependent on this factor). The average price of the considered plots of land with one garden in the range of 500 m is over 14% higher than in the vicinity of which there are no gardens and by almost 103% higher for areas located near two gardens.

Other studies concerned the impact of the presence of local park areas on the land prices in residential quarters (mixed development zones in the city centre with enclosed buildings) in Malmo, Sweden. The lack of local park areas has a significant negative influence on the average real estate values for both apartment houses and offices (the variability of land prices depends respectively in 13% and in 22% of the total land price variability in the analyzed residential area). The studies proved that the presence of local parks in the residential area increases the average real estate value by 22% for apartment houses and 28% for offices (Gruehn, 2008).

From a planning point of view, it is important to not only understand the overall economic factors but also to indicate the real impact of spatial decisions taken by public authorities on the economic value of space. The main parameter determining the assessment of the value of real estate is the purpose of the area specified in the local spatial development plan. It is worth emphasizing that each planning decision affects the real estate market, defining the possibilities of land use. The strength of this impact varies depending on the nature of the area and the type of changes introduced by the plan, causing an increase or decrease in its investment potential.

### **3.2. Social impact**

Care for social aspects of the civic areas is manifested by the adaptation of urban development to the needs and expectations of its citizens. Therefore grassroots initiatives, based on residents' spontaneity should be the points of reference for shaping the public space. This kind of approach could lead to more dynamic and better integrated projects for which the local residents would be the users, initiators and contributors of each action.

Temporary development of empty spaces provides an opportunity to recognize the desired solutions (Németh and Langhorst, 2014) and to evaluate citizens' needs which are very often unidentified at the construction stage. The observation of inhabitants' activity in the temporary development areas can be a source of invaluable insight for the city officials in terms of what works for the analyzed space. This kind of knowledge translates directly into a positive influence on the future development of the area and therefore on the future development of the city as a whole.

Temporary development of empty spaces is a valuable contribution to urban development through the improvement of the quality of space as well as its elevation. Empty spaces provide the opportunity to gradually transform temporary development, from being an experiment to the actual implementation, and therefore shift its temporary character to lasting development. Temporary developments allow city officials to experiment and seek alternative, actionable, ready to implement solutions where the classic urban development strategies fail. What makes the temporary development projects unique is including various people, areas and processes which were not typical for the usual spatial development projects.

Temporary developments might also be a valid alternative for the homogeneous urban landscape, contributing to the sustainable development of fast-growing cities. It may serve as connective tissue and a mediator of the transformation processes in the field of social, cultural and ecological impacts (Rahamann and Jonas, 2011).

### **3.3. Ecological impact**

The development of cities according to the concepts of sustainable development enforces responsible space management which maintains a balance between the commercial and valuable natural areas. Empty urban spaces can be a valuable asset for the future of biodiversity in cities. Urban ecology can significantly contribute to the creation of a rich and multi-layered urban environment, becoming a binding element between nature and the urban tissue. Thanks to the presence of vegetation, empty spaces can significantly contribute to the sustainable revitalization of urban areas, using their potential inherent in the function of an ecosystem (Gunwoo, 2016).

Urban greenery is an important element of the urban space layout and human life. Green areas can be divided according to their functions (aesthetic, leisure and recreation, didactic, health or ecological and protective), availability of use (generally



available, with limited accessibility or closed) and in terms of their creation (natural and designed).

Urban greenery, considered as leisure and recreational space can be a great meeting area that promotes establishing new social relations. It can also be a place of active and passive recreation (e.g. sports activities, walking) and a valid alternative to car journeys. Those functions are mainly fulfilled by parks, promenades, boulevards and accompanying greenery. The aesthetic function of greenery is usually accomplished through giving the city a specific character, improving its image, having an impact on its attractiveness, and complementing and highlighting the city architecture (sometimes covering unattractive and uninteresting elements). The didactic function of greenery is realized by providing tools for environmental and ecological education which include botanical, zoological, and historical gardens, etc. Finally, the ecological and protective function, which is being accomplished by reducing pollution in the environment, providing protection against noise, and improving the quality of the air. Greenery also affects the mental and physical health of urban residents and thus has a health function (Chojecka, 2014).

Therefore, empty urban spaces in terms of their environmental impact may exist as micro-habitats, function as urban heat island buffers, affect the microclimate (air humidity and soil quality and humidity), improve air quality (through CO<sub>2</sub> absorption), protect against noise and absorb pollution (e.g. communication routes), and mitigate other extreme climatic phenomena (e.g. protection against flooding, wind and sun).

#### **4. A choice of tools supporting empty space management**

In the face of progressing urbanization and the overcrowding of the modern world, cities are facing various challenges. Therefore it is vital to implement solutions that will balance the pace and intensity of urban transformation and the vacant space dystrophy. These activities are based both on the protection of the existing empty spaces and its value, as well as on the creation of new spaces, which seems to be a difficult phenomenon due to limited administrative and legal instruments and the finite volume of space.

To protect empty spaces against excessive building-up and the destruction of its values, measures should be taken to help to utilize its potential. This will require more flexibility in the spatial planning process of empty areas. The following is a catalogue of tools that, according to the author, could contribute to facilitating the use of urban voids:

- Establishing a local database of empty urban spaces, as an interactive monitoring tool (adapted for its users and constantly updated) of unbuilt, undeveloped, unused or degraded areas that have no specific purpose or are not used for a long time for the purpose specified in local plans. Mapping such data can provide information

on the location of free spaces, their ownership structures, the estimated duration of the vacancy, as well as plans for future use. It would be possible to easily illustrate areas that can be temporarily developed. The presented database of empty urban spaces aims to support urban space management more rationally and optimally by monitoring transformations of the urban spatial structure and initiating and testing the sustainability of future urban solutions.

- Establishment of an office/support department for the management of temporary development in the municipal office, which should be an undertaking in the field of monitoring awaiting spaces and coordinating the introduction of the productive use into empty spaces. The purpose of creating the above institution would be to detect, organize and coordinate the opportunities for the temporary development of various initiators in projects, as well as to gather and disseminate experience and knowledge from already implemented solutions (e.g. via a website). The task of the office/department would be to help to find the owners of a given area, enable cooperation between various entities and interested parties, and help in the procedures for submitting applications for permission to build a temporary building facility (e.g. street kiosks, pavilions, container facilities). The activities of the above institution should be based on an interdisciplinary approach, enabling the city to be looked at in terms of economic, demographic and ecological changes, adapting to these changes through the use of free urban space.
- City authorities should include temporary projects in the city's planning and design process, providing residents with support, both in the form of financial subsidies and, above all, non-financial resources. This is about making empty urban space and abandoned buildings available at low cost while waiting for the development phase, providing materials and knowledge (assistance in legal and administrative aspects of temporary development) or facilitating the temporary use of urban areas in existing planning documents (De Smet, 2013).
- City authorities should consider options to encourage property owners to participate in financing the open space system, creating new green spaces and maintaining them, especially those in the immediate vicinity. The amount to be contributed should depend on the measurable benefits resulting from the attractive quality of open urban spaces. The above observation can be implemented, e.g. by changing the property tax regulations (Gruehn, 2008).
- Introduction of changes in property tax for owners of unused plots, provided that this space is made available to the local community for temporary use (for a specific social purpose and for a specific time period). The purpose of this exclusion would be to improve the quality of devastated and unused empty private spaces, to create a temporary public space that would affect the residents' standard of living, shaping the spatial order and aesthetic values of the city.

## 5. Conclusion

Empty urban areas can significantly affect the socio-economic development of modern cities by improving the level and living conditions of the community. The use of empty urban voids is a combination of technical activities and economic recovery programs, and is also an action to solve the social problems occurring in a given area. Vacant urban plots can be used to improve competitiveness at local, regional and national levels, the inflow of new investments, the development of housing, improvement of facilities with social and technical infrastructure, the creation of new jobs and the protection of the natural environment. Moreover, the use of such areas allows residents to participate in shaping the city through grassroots initiatives, social integration, entrepreneurship activation and binding with the place of residence. Empty spaces have the clear potential to create opportunities for open urban spaces like temporary development or creative non-commercial applications. They can also become an important element for the real estate market by demonstrating a significant positive impact on the value of properties in the neighbourhood, thus improving the quality of urban space.

Under circumstances of dynamic, rapid changes in urban density and increased competition for space, empty spaces should be managed in a responsible, efficient way. Above all, more attention should be devoted to open urban spaces in political and administrative life. This requires legal regulations covering directly and comprehensively the issue of empty spaces, as well as the correction of current spatial planning regulations. Among the proposed tools for controlling and protecting the value of empty spaces, the following can be distinguished: mapping and monitoring the occurrence and transformation of empty spaces through an interactive database, solving the legal and ownership problems, and enabling initiatives for the temporary use of space.

## References

- Chojacka, A. (2014). The importance of green areas in public places and their impact on the quality of urban life. *Rynek – Społeczeństwo – Kultura*, 1(9), 48-54.
- De Smet, A. (2013). The role of temporary use in urban (re)development: Examples from Brussels. *Brussels Studies*, (72).
- Goldstein, J., Jensen, M., and Reiskin, E. (2001). *Urban vacant land redevelopment: Challenges and progress*. Cambridge, MA: Lincoln Institute of Land Policy.
- Gunwoo K. (2016). The public value of urban vacant land: Social responses and ecological value. *Sustainability*, 8(5), 486, MDPI, 1-19.
- Gruehn, D. (2008). Economic valuation of urban open spaces and their contribution to life quality in European cities. *Space – Society – Economy*, (8), 9-66.
- Hermann, B. (2013). Wartość nieruchomości w planowaniu przestrzennym. *Biuletyn Stowarzyszenia Rzeczników Majątkowych Województwa Wielkopolskiego*, 4-11.

- Kim, G., Miller, P. A., and Nowak, D. J. (2018). Urban vacant land typology: A tool for managing urban vacant land. *Sustainable Cities and Society*, (36), 144-156.
- Local Data Bank of Statistics Poland. Retrieved from <https://bdl.stat.gov.pl/BDL/start>
- Németh, J., and Langhorst, J. (2014). Rethinking urban transformation: Temporary uses for vacant land. *Cities*, (40), 143-150.
- Rahmann, H., and Jonas, M. (2011). *Urban voids: The hidden dimension of temporary vacant spaces in rapidly growing cities* (Proceedings of the State of Australian Cities National Conference, pp. 1-11). Melbourne: Australian Sustainable Cities and Regions Network.
- Register of Real Estate Prices and Values, The Board of the Geodesy, Cartography and City Cadastre in Wrocław.