Scientific Journal of Latvia University of Life Sciences and Technologies
Landscape Architecture and Art
Volume 24, Number 24

DOI: 10.22616/j.landarchart.2024.24.04

COMPREHENSIVE TRANSFORMATION IN UNUSED DEGRADING LANDSCAPED URBAN AREAS' DEVELOPMENT

Nellya Leshchenko, Alina Holovatiuk
Kyiv National University of Construction and Architecture, Ukraine

Abstract. According to the defined aim of the article, the methodology for the comprehensive transformation of unused degrading landscaped urban areas is proposed, based on the determination of a qualitative indicator of their existing state – the degrees of their historical and architectural value and destruction. The corresponding possible restorative (preserving and restoring) and reconstructive (renewing and transforming) methods of transformation depending on the degrees of value and destruction of a certain area are determined. The most effective combinations of various restorative and reconstructive methods for the realization of comprehensive transformation at different system levels – urban planning, volumetric, and functional, for unused degrading landscaped urban areas, depending on combinations of initial degrees of their historical and architectural value and destruction, are proposed. The principles of the comprehensive transformation of degrading landscaped urban areas, such as "cumulative development"; "contextual complementation"; "attractive spatial disclosure" and "multi-comfort" are formulated. Combinations of planning, volumetric-spatial, and functional transformation of urban space techniques are identified, which reveal the proposed principles, reinforcing each other's action, and make it possible to effectively recover and improve the quality of abandoned urban space, make it active and attractive for people with different preferences and capabilities. Approbation of the put-forward theoretical provisions in the concept of transformation and development of the degrading area along Pogulyanka Street in L'viv was carried out, which confirmed the effectiveness of the proposed methodology.
Keywords: comprehensive transformation; degrading landscaped urban areas

Introduction

The problem of degrading areas in the central parts of cities remains relevant to many cities in different countries. These are mainly former industrial and warehouse areas with abandoned buildings and open spaces that are currently not used, as well as abandoned and unimproved landscaped urban areas that do not attract visitors and remain urban "wastelands." Ukrainian cities are no exception. Over the past two years, in prolonged full-scale military operations and extensive destruction, this issue has become extremely relevant for them and has acquired a new, more complex meaning. After the war is over, Ukrainians will need to find the necessary tools to transform degraded or already destroyed urban areas to recover them to meet the current needs of their residents. In this context, this article proposes methodological principles and practical recommendations for the transformation and future development of unused degrading landscaped urban areas with former industrial destroyed territories and buildings that organized them.

The transformation of abandoned, degrading urban areas is a complex process of improving their quality through new qualitative changes in their functional content, layout, volumetric-spatial, architectural, aesthetic, and environmental characteristics, as well as social and economic attractiveness [18]. The point is to increase their architectural, cultural, social, and economic attractiveness, quality, and interest in the various-term stays of different people in them. The comprehensive transformation of currently degrading urban areas with their new functional, cultural, and emotional content will make it possible to attract people with different preferences, which will contribute to their recovery and sustainable development of the city as a whole [10].

The theoretical basis for this study is the work of some scholars from different countries. They have studied various components of improving the quality of degrading urban areas, which can be conditionally generalized and systematized as functional, urban planning, architectural and imaginative, transport, social, economic, environmental, aesthetic, cognitive, etc. It is worth highlighting the works of J. Corner [3; 4], S. Low [22], and J. Gehl [7; 8] on urban areas as complex formations that combine many important functions. It is also worth noting the study of the urban planning component of the issue, which is the most complex for understanding, as it considers the entire system of different urban areas comprehensively and indivisibly, namely the works of M. Gusev [9], K. Lynch [24], I. Stetsyuk [28]. Of great importance are theoretical works on the transport component in addressing the issues of joint use of urban areas by pedestrians, cyclists, and vehicles, carried out by M. Harbar [6], the socio-economic component – in the works of J. Jacobs [13], W. Whyte [33], L. Wirth [32], M. Storper [29], the aesthetic and emotional-cognitive component in the transformation and development of urban spaces – in the studies of M. Lydon and E. Garcia [23], J. Lerner [15], C. Day [5], P. Nas [25], as well as universal design issues – in the article by U. Ile and L. Bergmane [11]. The work of G. Simmel [27] should be singled out separately, in which he considers urban space as a set of symbolic points that are saturated with a certain social meaning and are a place of localization of relations between people and information exchange. The French sociologist P. Bourdieu [1] argues that the urban space is an overlay of social space on the physical space, which ideally should always intersect. Physical space without social space will not be filled with people, while social space without physical space cannot exist at all. In his opinion, any physical changes in space should be considered and studied together with the social demand for this space, because only this approach gives a complete picture of the need for a particular urban space and transformations in it [1]. It is also worth highlighting the works of L. Ruban [26], B. Bratton [2], I. Ustinova [30], V. Kucheryavyi [14] are devoted to the issues of preserving and maintaining a positive environmental situation in cities, creating places for recreation, restoring degrading water recreational areas in cities, as well as ensuring the figurative integrity of the transformed urban space in the elements of its equipment, navigation, style, color, and texture solutions. It is also worth noting the author's previous research in collaboration with D. Gulei [16] on the transformation of historically formed industrial areas

in historical cities.

The analysis of previous experience points to the existing contemporary problems in the functioning of various urban areas and different approaches to solving them.

The need to improve the existing and search for new, more effective tools for the transformation of degrading urban areas stipulates the relevance of this study. This article aims to propose a methodology for a comprehensive transformation of unused degrading landscaped urban areas, which has to contribute to their activation and further development, as well as allow to eliminate or reduce various destructions at different systemic levels. In addition, the transformation of a complex urban area, which historically was part of a park, as well as industrial and public areas, is considered as a practical example. Now, it is an unused degrading landscaped urban area with former industrial territory and buildings that organised it. The scientific novelty is that the authors propose the use of various combinations of restorative and reconstructive methods for the transformation of such degrading urban areas, depending on the initial qualitative indicator of their existing state – the degrees of their historical and architectural value and destruction.

Materials and Methods

The proposed methodology includes the following methods. The method of logical and comparative analysis was used to define the research problem, determine its study, and issues to be investigated. The method of generalization was used to identify four degrees of historical and architectural value and four degrees of destruction of unused degrading landscaped urban areas. Using systematization, the combinations of restorative and reconstructive methods that are most effective for the transformation of such urban areas were identified. They depend on the determined degrees of these areas' historical and architectural value and destruction. With the help of experimental design, a concept for the comprehensive transformation and development of a degrading area along Pogulyanka Street in L'viv was created, which confirmed the effectiveness of the proposed theoretical assumptions. The concept was created as part of a contest for the development and zoning of this degraded urban area and its transformation into a multifunctional, livable, interesting to visit, and quality leisure time, the results of which became the basis for further detailed design.

The basis for the correct choice of a complex of restorative and reconstructive methods for the transformation of currently abandoned and degrading urban areas are the methodologies proposed in the author's previous studies for determining the degree of historical and architectural value and destruction of the historical urban environment [20; 21]. On their basis, using such methods as historical, graphic-analytical, comparative analysis, field survey, historical and architectural assessment, and generalization, the initial qualitative indicator of the existing state of a particular area is determined. It consists of various combinations of degrees of historical and architectural value and destruction.

It is proposed to distinguish four degrees of historical and architectural value and four degrees of destruction, according to which all areas in a particular city can be systematized. Depending on the defined degrees of historical and architectural value and destruction of a certain area, if it needs to be transformed, appropriate certain restorative (preserving and restoring) or reconstructive (renewing and transforming) methods or combinations of them can be applied to it.

For urban areas of the first degree of historical and architectural value (areas with historically valuable layouts, which include architectural monuments and significant historical buildings) and the first and second degrees of destruction (with fragmentary or point destruction, absence or single disharmonious buildings, respectively), only preserving and restoring methods may be used. For urban areas of the second and third degrees of historical and architectural value (areas with historically valuable layouts, which lack architectural monuments and significant historical buildings, but have ordinary historical buildings or only modern buildings) and the third degree of destruction (with significant planning and volumetric-spatial destruction, with disharmonious buildings), renewing reconstructive methods will be relevant. However, for such areas and the buildings that form them, if necessary and appropriate, renewing methods can also be supplemented by preserving and restoring methods. For urban areas of the third and fourth degrees of historical and architectural value (areas with historically valuable layouts and modern buildings, with no monuments and historic buildings, or areas with only modern layouts and modern buildings) and the fourth degree of destruction (destroyed or degraded because of modern disuse, with the presence of disharmonious buildings), transforming reconstructive methods are recommended. In addition, for improving the quality of such areas and their buildings, both restoring and renewing methods can be used, if necessary and appropriate, in combination with transforming methods.

To ensure the integrity of the process of transformation of abandoned and degrading landscaped urban areas, improving their quality should take place simultaneously at different systemic levels – urban planning, volumetric, and functional, using the methods of restorative-reconstructive transformation appropriate to these levels. At the urban planning level, the issues of increasing the value, integrity, and quality of the planning and spatial structure of the area as a whole should be addressed. At the volumetric level, it is improving the quality of the planning, architectural, structural, and engineering structures of buildings that form this area. At the functional level, it is finding relevant functional solutions for buildings and open spaces to increase their value and activate the urban area [17].

Based on the systematization of existing restorative and reconstructive methods by the activity of interventions for different systemic levels proposed in the author's previous study [19], it is possible to identify the most appropriate combinations of them for the transformation of various degrading landscaped urban areas, depending on the initial qualitative indicator of their existing state – a combination of degrees of their historical and architectural value and destruction.

Thus, for degrading landscaped urban areas of the first degree of historical and architectural value, the following preserving methods can be used in their transformation at the urban planning level: urban conservation or museumification (if these areas have the first degree of destruction), or restoring methods: recovery, revalorization or regeneration (if they have the second and higher degrees of destruction).

Degrading areas of the first degree of historical and architectural value usually include architectural monuments and significant historical buildings. They also have the first degree of historical and architectural value. If they are in the first degree of destruction, the following preserving restorative methods can be used to transform them, already at the volumetric level: repair or museumification. With the second and higher degrees of destruction, restoring methods can be applied to them - fragmentary and holistic restoration, revalorization, or regeneration, respectively. In some cases, it

is also possible to use the method of re-creation. This method is appropriate if an architectural monument or a significant historical building was destroyed "instantly" (because of war, for example). And the buildings remaining nearby form an ensemble created in one period.

If a degrading landscaped urban area of the first degree of historical and architectural value, besides architectural monuments and significant historical buildings, also contains ordinary historical buildings and low-value buildings, then renewing methods can be applied to them (at the volumetric level) - sanation in combination with modernization. In addition, spot new construction is possible in such areas.

At the functional level, for such areas and buildings during their transformation, several functional methods: interpretation, modification of the original function, or adaptation, can supplement the methods used at the urban planning and volumetric levels.

For degrading landscaped urban areas of the second degree of historical and architectural value, restoring methods, such as revalorization or regeneration, can also be used in their transformation at the urban planning level, especially if these areas have the first degree of destruction. For areas that have the second and higher degrees of destruction, renewing reconstructive methods, namely revitalization, will be more relevant. And, as a rule, the sanation of the degraded areas should precede these restoring and renewing methods.

At the volumetric level, for ordinary historic buildings, depending on their degree of degradation, both restoring methods, such as fragmentary and holistic restoration, revalorization or regeneration, and renewing reconstructive methods, such as revitalization, can be applied. For the existing low-value degrading buildings in these areas, it will be advisable to use modernization in combination with sanation. Corrective new construction is also possible in these areas.

At the functional level, when transforming such areas and buildings, these methods can be supplemented by the following functional methods: adaptation, functional filling, and functional renewal.

For degrading landscaped urban areas of the third degree of historical and architectural value, it will be advisable to use a combination of reconstructive methods such as renewal and sanation when transforming them at the urban planning level. If we are talking about a degrading urban area with a high degree of destruction (for example, the fourth degree), then it would be advisable to use such a reconstructive method as transfiguration, either separately or in combination with renewal. And the sanation of the degraded area should also precede these methods.

At the volumetric level, combinations of methods such as sanation and modernization (renewing methods) or sanation and renovation (renewing and transforming methods) can be applied to the existing degrading buildings in these areas, depending on their degree of destruction. In addition, contextual new construction is possible in these areas.

At the functional level, the transformation of such areas and buildings will be based on the use of functional filling and functional renewal.

For degrading landscaped urban areas of the fourth degree of historical and architectural value, the use of such a transforming reconstructive method as renovation will be relevant to their transformation at the urban planning level. If such a degrading area is located outside the historical center, then radical rebuilding may already be used to transform it. It is also possible to combine the two methods - renovation and radical rebuilding. The sanation of the degraded area should precede these methods.

At the volumetric level, for the degrading buildings existing in these areas, also depending on the degree of their destruction, the following combinations of renewing and transforming reconstructive methods can be applied: sanation and modernization, sanation and renovation, or renovation separately. In addition, active new construction is also possible in these areas.

At the functional level, the transformation of such degrading areas and buildings will involve re-functionalization and functional filling, and functional renewal is also possible.

As a rule, in a real practical situation, different degrading buildings are present in the same area. Therefore, one can observe various combinations of their degrees of historical and architectural value and destruction. The area itself may also have parts with varying degrees of destruction. Therefore, to effectively address their transformation, it is important to apply not just one method for each level, but a complex of appropriate restorative and reconstructive methods. This is exactly the approach proposed in the author's concept for the development of the degraded area along Pohulyanka Street in L'viv, presented below.

Results and Discussion

The concept of transformation and development of the degrading area along Pohulyanka Street in L'viv. Disclosure of the ideas and decisions made

The project area is located along Pohulyanka Street, within the boundaries of Pohulyanka Forest Park, and belongs to the Lychakivskyi district of L'viv. It is located in the zone of buildings regulation.

According to the existing zoning regulations, the project site is designated as a mixed development area, with the G-4 zone for cultural and sports facilities, the Zh-2 zone for low-rise and medium-rise residential development, the G-3-1 zone for kindergartens and secondary schools, as well as the P-3 zone for public green spaces and the L-1 zone for green spaces on steep slopes that are not used and inconvenience (Fig.1).

Within the project area, there are currently degrading buildings of a former brewery and then a winery dating back to the mid-19th century.

Historically, Pohulyanka Street, with buildings along it, passed through the entire valley territory of the modern Pohulyanka Forest Park [34]. A brewery, restaurants, a candy store, and an ice cream factory were located here, where anyone who wanted to after a walk along the steep slopes of Pogulyanka could have a good meal, try beer, and buy delicious ice cream [31]. Music concerts and dances were also held on the open grounds of Pogulyanka. There was also an open-air

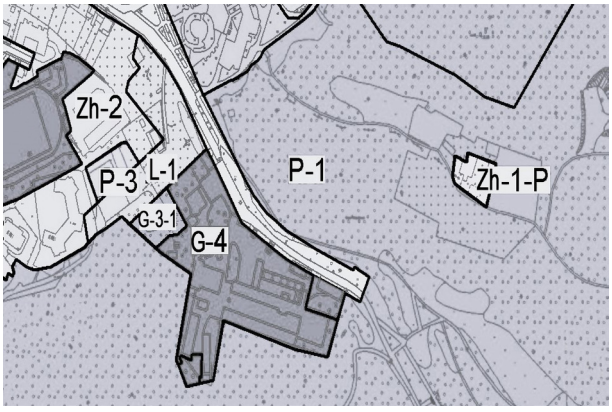

Fig. 1. The existing zoning, 2023 [35]

Fig. 2. The existing state of the main historical building, 2023
[photo by the authors]

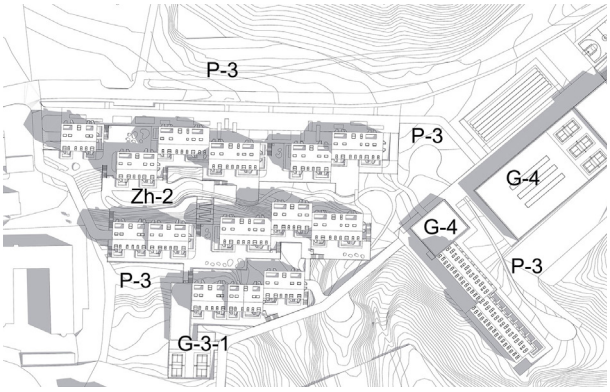

Fig. 3. The proposed new functional use of the area, 2023
[created by the authors]

bath, which was very popular among the townspeople. In the first half of the 20th century, a stadium and a tennis court appeared here, and then a ski jump [12]. The Pohulyanka has strengthened its importance as a popular place for active recreation and sports among the townspeople.

Today, the site of the former brewery and winery and the adjacent territories are not used in any way, they are abandoned. Their buildings, both those that have historical and cultural value and are examples of industrial architecture of the mid-19th century, and low-value buildings from the second half of the 20th century, stand empty, and lose their socio-cultural value, gradually turning into ruins.

The existing historical objects, despite having a significant degree of destruction (Fig.2), are of interest to antiquity lovers as examples of the industrial architectural heritage of the past century. Therefore, the proposed project provides for their maximum preservation with the restoration of destroyed parts, with adaptation to the modern needs of the city and its residents. It is proposed to preserve the main façade of the main production building with three characteristic gables dating from the mid-nineteenth century, as well as the underground vaulted premises of this building, and adapt them to a service function. At present, it is not advisable to recover the historic industrial function in the revitalization of these abandoned buildings and the area. Their original function should be modified and left as a representative in the revitalized and renewed multifunctional public complex with recreational, sports, commercial, and service functions as the main ones.

In terms of historical and architectural value, the area along Pogulyanka Street has parts of the first and second degrees of value. According to their destruction, they were assigned to the third and fourth degrees. Therefore, a complex of the following restorative and reconstructive methods was applied to transform and further develop this degrading area. At the urban planning level (for the planning and spatial transformation of the plots that form this area) is a combination of such methods as sanation, revitalization, and renewal, as well as their addition by transfiguration with contextual new construction. At the volumetric level (for the volume-planning transformation of degrading buildings present in this area) is a combination of such methods as holistic restoration and revitalization (for historically-value buildings), as well as modernization and renovation together with sanation (for low-value buildings). At the functional level, these methods were supplemented by adaptation with modification of the original function, as well as functional renewal and functional filling.

The project envisages a new division of the area by functional use into three main zones: public zone G-4 (zone for cultural and sports facilities), located in the southeast of the site; residential zone Zh-2 (zone of medium-rise residential buildings, 5-7 floors); and extended recreational zone P-3, located in the north. The location of the G-3-1 zone for a kindergarten on the project site remains unchanged (Fig.3). It is planned to place the sports and recreation complex and an apart-hotel on the site of the practically destroyed buildings of the former brewery and winery. It is proposed to preserve and restore the existing historically valuable facades with their harmonious integration into the new building. The upper, northern part of the project area is planned for residential development. The project recreation area should unite the entire new buildings into one whole, starting in the north of the site, behind the residential buildings, passing through them, and going down to the southeast of the site, to the sports and recreation complex and the apart-hotel, harmoniously integrating into the existing recreation area Park Pohulyanka.

The proposed residential buildings, mostly 5-6 stories high, form a cascading complex, following the relief. They are located on three terraces-tiers, connected into a single whole by convenient open passages, ramps, stairs, lifts, and a stramp. They have a common underground car park with three entrances and exits from Olena Teliha and Pohulyanka streets. On the ground floor of the residential buildings of the first tier, from the side of Pohulyanka Street, it is also proposed to place commercial premises (convenience stores, cafes, a pharmacy, a beauty salon, and an art workshop), which will provide functional filling of the space and improve its quality. The kindergarten is located next to the third-tier residential buildings in the G-3-1 zone. This is logical and economically expedient. The kindergarten building is two-story and has a flat "green" roof. On the 1st floor level, there is an open area with an entrance group. On the second floor, there are separate rooms for four groups of children and utility rooms. The kindergarten also has sports, playground, utility, and gardening areas, and a separate entrance from Olena Teliha Street.

The building of the sports and recreation complex is 4-storey, with an underground car park for 320 cars, which is connected to the apart-hotel car park. The main entrance to the complex and the main facade are oriented towards Pogulyanka Street. There is a basketball court and an outdoor swimming pool in the territory. The flat roof is a great place for two tennis courts and three badminton courts. The rest of the exploited green roof (about 2,800m2) is given over to solar panels and collectors that use the sun's energy to heat the outdoor pool and generate electricity independently, which should be enough for the entire complex.

The apart-hotel, like the sports and recreation complex, is also located on the site of the remains of a former winery. The hotel's residential buildings have 5-6 full floors and a mansard

Fig. 4. The concept of a new pedestrian space along Pohulyanka Street, 2023 [created by the authors]

Fig. 5. The concept of a new residential development, 2023 [created by the authors]

Fig. 6. The revitalization concept of the former winery into the sports and recreation complex, 2023 [created by the authors]

floor, and its entrance area with a reception and restaurant has 2 floors. The longitudinal facades of the hotel's residential buildings are equipped with large windows for each room and balconies protected from the north. The hotel has an underground car park and an open area for tourist buses and special medical and fire vehicles.

The idea of building functional and transport links in the design area involves the formation of a multifunctional urban space, where places and functions of mandatory and optional social practices (living, working, convenient movement, as well as recreation, entertainment, and cultural leisure) are interconnected into a single whole. A green recreational area is proposed to expand to 2.17 hectares and arrange for public use, creating places for walking, playgrounds, and places for recreation, sports, communication, and quality leisure time.

To ensure transport links between the city and the projected buildings, it is planned to build new access roads from the west of the project area, from Olena Teliha Street, to access the apart-hotel, the sports and recreation complex, and the upper tier of residential buildings and kindergarten, and from the north, from Pohulyanka Street, to access the two lower tiers of residential buildings. Pedestrian paths and stairs provide high-quality and convenient pedestrian communication between all elements of the design area. Barrier-free accessibility is achieved by ramps, stramps, and lifts.

Pedestrian promenades along artificial streams using natural thalwegs also add to the comfort of the site. They start from the upper artificial reservoirs, which are periodically filled with atmospheric runoff, and descend through artificial channels lined with stones with drainage. Thanks to the height differences and large stones, cascades are created, and a pleasant murmur of water is heard on the site. The streams flow into another lower artificial reservoir, which is skilfully integrated into the landscape and formed from smaller stones.

Along Pohulyanka Street, there is a 2m wide bicycle path with local extensions for charging electric scooters and mono wheels. Further on, there is a green zone (4 m), a promenade zone (4.5 m), and a zone for recreation, communication, and leisure with a variety of comfortable seating areas, with tables and benches on open terraces in front of coffee shops and bakeries. The building area is connected to the alley by pedestrian paths. They are illuminated with energy-saving LED luminaires with solar modules and twilight sensors (Fig. 4).

The idea of forming a three-dimensional spatial composition of the development involves the rational use of the relief with maximum preservation of the natural slope and green spaces. A cascading composition of residential development with the creation of three terraces-tiers, united into a single whole by pedestrian crossings, is proposed (Fig. 5). The residential complex consists of 14 buildings, 5-6 floors with an attic. They are sectional. There are two or three apartments on one floor, connected by a common hall on the horizontal plane. Stairs and lifts provide vertical connections. The connection between the three tiers-terraces of the residential development is made by footpaths, stairs, ramps, lifts, and a stramp. There is a one- or two-level parking lot under all tiers.

The sports and recreation complex and apart-hotel are located on the site of the remains of a former winery. The plan follows the contours of the winery's buildings. The preserved historic façade of the main building of the former winery is being restored and integrated into the new building of the sports and recreation complex. The homogeneity of the new glass superstructure emphasizes its dominant significance, against which it stands out (Fig. 6). The layout of the sports and recreation complex and the apart-hotel is mixed. Stairs and lifts provide vertical connections, while a gallery, corridors, halls, and terraces provide horizontal connections.

The main landscaping elements of the project area include the paving of footpaths, platforms, and ramps, organization of patios and terraces protected by vegetation, lighting of the area with LED lamps of different heights, creation of seating using recycled materials, arrangement of artificial streams and ponds with natural stones, arrangement of footpaths and resting places along them.

The elements of green spaces include trees, shrubs, and lawns made of plants resistant to the local climate. Plants of different heights will be used to protect against noise. The project also provides for the maximum preservation of existing trees.

The proposed project for the comprehensive transformation and development of the area along Pogulyanka Street with the revitalization of abandoned former industrial buildings and territory is based on the following author's principles: "cumulative development"; "contextual complementation"; "attractive spatial disclosure" and "multi-comfort".

The principle of "cumulative development" - the accumulation of positive properties that together contribute to a qualitative change, a combination of "traditions" and "innovations" - formed the basis for the revitalization of the former winery, the restoration, and integration of its historic facades into the new building of the sports and recreation complex.

The principle of "contextual complementation" - the introduction of new buildings and spaces following the existing context - determined the idea of forming a three-dimensional cascading composition of the new residential development with the creation of three terraces-tiers, with maximum preservation of the natural slope and its green spaces.

The principle of "attractive spatial disclosure" - increasing the attractiveness of a certain urban space, and the principle of "multi-comfort" - ensuring a high-quality long-term stay of people in this urban space, determined its functional and physical content to form a multifunctional urban space, where places and functions of mandatory and optional social practices are interconnected into a single whole, convenient and interesting for different people with different preferences and opportunities.

To reveal the above principles, we also used a combination of several techniques for the planning, spatial, and functional transformation of urban space. This is a combination of such techniques as: "facade offset" (when the new part of the facade shifted inwards compared to the historical part of the facade of the revitalized building, emphasising its dominant importance); "single pedestrian space" (combining all elements of a particular urban space into a single pedestrian zone); "green ring" (for the spatial integration, combining the existing park and a new green recreational area along the terraces of residential buildings, around the apart-hotel and sports and recreation complex into a single whole); "horizontal and vertical zoning" (equal functional filling of the degrading landscaped urban area, with the distribution and combination of various functions and its structural elements in the horizontal and vertical planes, which will contribute to its revitalization, quality improvement and transformation into a multi-comfortable one); "creation of artificial ground levels and geoplastic" (for spatial allocation of certain places with certain functions in a given space, attracting people's attention to them, i.e. creating places for diverse and long-lasting attractions); "activation of boundary zones" (through the connection and change of various

functions on the boundaries between the building and the open urban space, which lead to the activity of actions when people are interested in them and thus activate and improve the quality of this place). Together, these techniques will reinforce each other's effect. This will make it possible to recover and improve the quality of abandoned urban space, making it active and attractive for people of different preferences and capabilities.

Conclusions

Summarising, it can be noted that the proposed methodology for the comprehensive transformation of degrading landscaped urban areas using various combinations of restorative and reconstructive methods, depending on the defined initial qualitative indicator of the existing state of these areas - the degree of their historical and architectural value and destruction, is effective. For urban areas of the first degree of historical and architectural value and the first and second degrees of destruction, it is possible to use only preserving and restoring methods. For urban areas of the second and third degrees of historical and architectural value and the third degree of destruction, renewing reconstructive methods are relevant, but they can be supplemented by preserving and restoring methods. For urban areas of the third and fourth degrees of historical and architectural value and the fourth degree of destruction, transforming reconstructive methods are recommended, which can also be supplemented by restoring and renewing methods. The most appropriate combinations of various restorative and reconstructive methods for the transformation of various degrading urban areas were also identified, depending on the initial qualitative indicator of their existing state and the integrity of solving the issue simultaneously at different systemic levels - urban planning, volumetric, and functional.

The proposed methodology has been successfully tested in the author's concept of transformation and development of the degrading area along Pohulyanka Street in L'viv, which has first and second degrees of historical and architectural value and third and fourth degrees of destruction. Accordingly, a combination of restorative and reconstructive methods was used for its transformation, such as: sanation, revitalization, and renewal (to address issues at the urban planning level); holistic restoration and revitalization, as well as modernization and renovation together with sanation (to address issues at the volumetric level); and adaptation with modification of the original function, functional renewal, and functional filling (to address issues at the functional level). This made it possible to improve the quality of the degrading landscaped urban area integritically.

The proposed principles and techniques of urban space transformation are universal and relevant for the recovery and revival of degrading landscaped urban areas, which differ in historical and architectural value and destruction. Their application has enhanced the effectiveness of the comprehensive transformation and development of the area along Pohulyanka Street in L'viv.

References

1. Bourdieu, P. Beginnings. Moscow: Socio-Logos, 1994. 288 p.
2. Bratton,B.The Terraforming. Moscow: Strelka Press, 2020. 128 p.
3. Corner, J. High Line. New York: Phaidon Press, 2020. 400 p.
4. Corner, J. The Landscape Imagination: Collected Essays of James Corner 1990-2010. New York: Princeton Architectural Press, 2014. 320 p.
5. Day, C. Places of the Soul: Architecture and the Environmental Design as a Healing Art. London: Aquarian, 1990. 280 p.
6. Harbar, M. Architectural and planning organization of bicycle structures in cities. Ph.D. thesis. Kyiv: Kyiv National University of Construction and Architecture, 2019. 229 p.
7. Gehl, J. Cities for People. Washington: Island Press, 2010. 280 p.
8. Gehl, J. Life among buildings. Moscow: Concern Krost, 2012. 200 p.
9. Gusev, M. Principles of formation and development of the city landscape. Ph.D. thesis. Kyiv: Kyiv National University of Construction and Architecture, 2021. 225 p.
10. Holovatiuk, A., Leshchenko, N. Objects-memes in the architectural organization of attractive urban public spaces. Landscape architecture and Art. Scientific Journal of Latvia University of Agriculture, 2022, vol.20, p.73-81. https://doi.org/10.22616/j.landarchart.2022.20.08
11. Ile, U., Bergmane, L. Development Patterns of Universal Design in Residential Courtyards in the Jugla Neighbourhood. Landscape architecture and Art. Scientific Journal of Latvia University of Agriculture, 2023, vol.22, p.109-119.
12. Isaevich, Y. History of Lviv. Volume 3. November 1918 – beginning of the XXI century. Lviv: Center of Europe, 2007. 576 p.
13. Jacobs, J. The Death and Life of Great American Cities. New York: Random House, 1961. 460 p.
14. Kucheryavyi, V. Landscaping of inhabited places. Lviv: Svit, 2005. 456 p.
15. Lerner, J. Urban Acupuncture. Washington: Island Press, 2014. 160 p.
16. Leshchenko, N., Gulei, D. Complex revitalization of historically formed industrial territories in Kyiv in post-war recovery. Journal of Architecture and Urbanism, 2024, vol.48(1), p. 1–10. https://doi.org/10.3846/jau.2024.19337
17. Leshchenko, N. Cumulative development and strategic model of the complex process of restoration-reconstructive transformations of the historical centers of small towns to improve the life quality in them. AIP Conference Proceedings, 2023, vol. 2490, p. 060012-1–060012-9. https://doi.org/10.1063/5.0122980
18. Leshchenko, N., Holovatiuk, A. Multi-comfortable urban architectural environment. Architecture City Engineering Environment, 2023, vol.16, p.5-13. https://doi.org/10.2478/acee-2023-0001
19. Leshchenko, N. Methodological foundations of the restoration-reconstructive transformations of the historical centers of small towns. Dr.Sc. thesis. Kyiv: Kyiv National University of Construction and Architecture, 2020. 447 p.
20. Leshchenko, N. Methodology of determining the genetic code of the city: a basis for restorative and reconstructive transformations in its historical center. Wiadomosci Konserwatorskie. Journal of Heritage Conservation, 2022, No. 69, p. 7–14. https://doi.org/10.48234/WK69GENETIC
21. Leshchenko, N. Methodology of determining the degree of damage to a historical city center for its comprehensive restorative and reconstructive transformation. Wiadomosci Konserwatorskie. Journal of Heritage Conservation, 2023, No. 76, p. 23–31. http://www.zeriba.pl/wkjohc/wk/wk76.pdf
22. Low, S. Plaza. Politics of public space and culture. Moscow: Strelka Press, 2016. 352 p.
23. Lydon, M., Garcia, E. Tactical urbanism: short-term actions for long-term changes. Washington: Island Press, 2015. 230 p.
24. Lynch, K. Perfect form in urban planning. Moscow: Stroyizdat, 1986. 264 p.
25. Nas, P. Cities Full of Symbols. A Theory of Urban Space and Culture. Amsterdam: Leiden University Press, 2011. 303 p.
26. Ruban, L. Guidelines for "Blue-Green" Urban Infrastructure: Adaptive Model and its Structural Elements. Landscape architecture and Art. Scientific Journal of Latvia University of Agriculture, 2023, vol.22, p.147-156.
27. Simmel, G. Elected. Philosophy of culture. Contemplation of life. Moscow: Lawyer, 1996. 1278 p.
28. Stetsyuk, I. Socio-cultural principles of harmonious transformation of the urban environment. Ph.D. thesis. Kyiv: Kyiv National University of Construction and Architecture, 2016. 216 p.
29. Storper, M. Keys to the City. Princeton: University Press, 2013. 288 p.
30. Ustinova, I. Principles and strategies of sustainable development of regions. Motrol, 2015, vol. 17, p. 13-25.
31. Vynnychuk, Y. Lviv's Kneips. Lviv: Spolom, 2000. 153 c.
32. Wirth, L. The ghetto. New Jersey: Transaction publishers, 2018. 376 p.

33. Whyte, W. The Social Life of Small Urban Spaces. NY: Project for Public Spaces, 2004. 125 p.
34. Yavorskyi, F. Among the trees and greenery: Pogulyanka. Lviv: Center of Europe, 2014. 249 p.
35. Zonynh.Plan zonuvannya L'vova. Lviv: Derzhavnyy instytut proektuvannya mist "MISTOPROEKT", 2013.

Authors

Nellya Leshchenko, Doctor of Science (Architecture), Professor of the Department of Information Technology in Architecture, Kyiv National University of Construction and Architecture. Sphere of activity – landscape architecture, restorative-reconstractive transformations, theory of architecture. Department of Information Technology in Architecture, Kyiv National University of Construction and Architecture, Povitroflotskyi Avenue, 31, Kyiv 03037, Ukraine.
E-mail: nellya_leshchenko@ukr.net
ORCID ID: https://orcid.org/0000-0002-3198-4554

Alina Holovatiuk, Ph.D (Architecture), Kyiv National University of Construction and Architecture.
Sphere of activity – urban public spaces, eco and bio architecture. Department of Information Technology in Architecture, Kyiv National University of Construction and Architecture, Povitroflotskyi Avenue, 31, Kyiv 03037, Ukraine.
E-mail: deppyjo1212@gmail.com
ORCID ID: https://orcid.org/0000-0003-4705-1027

Kopsavilkums

Atbilstoši definētajam raksta mērķim, pētījumā tiek piedāvāta neizmantoto, degradēto pilsētvides teritoriju visaptveroša pārveidošanas metodika, kuras pamatā ir to esošā stāvokļa kvalitatīvā rādītāja, vēsturisko un arhitektonisko vērtību iznīcināšanas pakāpes noteikšana. Rakstā tiek pētītas atbilstošas pieejas un transformācijas metodes atkarībā no teritorijas vērtības un iznīcināšanas pakāpēm. Piedāvātie pilsēttelpas pārveidošanas principi un paņēmieni ir universāli un aktuāli degradēto pilsētvides teritoriju atveseļošanai un atdzimšanai, kas atšķiras pēc vēsturiskās un arhitektoniskās vērtības, to iznīcināšanas pakāpes. Pētījumā tiek identificētas pilsēttelpas plānošanas, funkcionālās transformācijas kombinācijas, kas atklāj dažādus principus un ļauj efektīvi atgūt, uzlabot pamestās pilsēttelpas kvalitāti, padarīt to aktīvu un pievilcīgu cilvēkiem ar dažādām vēlmēm un iespējām. Pētījumā kopumā tiek veikta degradēto teritoriju gar Poguljanka ielu Ļvivā pārveidošanas un attīstības koncepcijā izvirzīto teorētisko noteikumu aprobācija, kas rezultātā apstiprina piedāvātās metodoloģijas efektivitāti.