

23

Research paper | Оригинални научни рад
DOI 10.7251/STP2215246M
ISSN 2566-4484



Anita Milaković, University of Banja Luka, anita.milakovic@aggf.unibl.org
Nevena Novaković, University of Banja Luka, nevena.novakovic@aggf.unibl.org

COLLECTIVE HOUSING FORM IN THE CONTEXT OF THE DISPERSED CITY: BANJA LUKA CASE STUDY

Abstract

The paper discusses how the dispersed urban form of Banja Luka (Bosnia and Herzegovina) is related to the collective housing form that emerged during the 20th and 21st centuries. The morphological study resulted in the typological patterns of collective housing form based on the relationship between the house and open space and follows its transformation during the period. It was based on a qualitative analysis of the figure/ground ratio and its configuration, and the correlation of morphology results to distinct economic issues and architectural paradigms. The research confirmed that open space was continually and significantly present in collective housing form in all typological patterns. The diffuseness and openness on the housing scale contributed to the dispersity of urban form on a larger scale.

Keywords: collective housing form, dispersed urban form, figure-ground, open space, Banja Luka

ФОРМА КОЛЕКТИВНОГ СТАНОВАЊА У КОНТЕКСТУ ФОРМЕ ДИСПЕРЗНОГ ГРАДА: СТУДИЈА СЛУЧАЈА БАЊА ЛУКА

Сажетак

Рад разматра везу између дисперзних карактеристика урбане форме Бања Луке и карактеристика форме колективног становања у току 20. и 21. вијека. Резултат морфолошке студије, презентоване у раду, су типолошки обрасци форме колективног становања чија је класификација заснована на релацији између куће и отвореног простора и прати њену трансформацију током предметног периода. Базира се на квалитативној анализи односа и конфигурације фигура/позадина и њихове корелације са одређеним економским параметрима и архитектонским парадигмама. Истраживање је потврдило да је отворени простор континуално присутан као структурални елемент форме колективног становања. Разуђеност и отвореност у размјери форме становања допријела је дисперзности урбане форме у великој размјери.

Кључне ријечи: форма колективног становања, дисперзна урбана форма, фигура-позадина, отворени простор, Бања Лука

1. INTRODUCTION: SCALES OF DISPERSED FORM

In contemporary urban theory, a compact urban form is considered sustainable. The generally accepted premise is that morphological features of compactness and density of built structures have positive ecological, economic and social effects on urban life [1], [2], [3]. The concept of a compact city is widely operationalised in urban policies and strategies [4]. In such compact and dense urban forms open spaces are planned as counterpoints to the built fabric. They are also compact, large and categorised as a specific typology - parks, green belts, boulevards, squares, etc. However, not all cities can become compact, and some have never been compact. On the contrary, urbanisation today produces a large, dispersed, and polymorphic urban tissue deeply extended in the once rural and natural environment [5], [6], [7]. Open spaces have a significant role in the composition of the dispersed urban form [8], [9] and observing them through traditional typologies of large compact voids in the dense built fabric is inadequate. The dispersed city also needs attention concerning urban policies and spatial regulations that follow its inherent nature.

The morphological case study presented in this paper aims to contribute to dispersed city considerations, its origin and the relation of dispersity to smaller spatial scales of urban form. Banja Luka, the case study city, has a dispersed and porous urban form generated through historical development and change (Figure 1) [10]. It is a middle-size city with recognisable spatial openness whose morphological logic needs to be understood at various scales and appropriately integrated into city planning and design. Residential architecture is considered a driving force of every city's production and growth. The research focuses on the collective housing form and its intrinsic relation between built and open space to understand the characteristics and qualities of dispersed urban form on a smaller scale. The initial research thesis is that open space was the intrinsic morphological element of the collective housing form. The open spaces were not only planned at the city scale as the reserve of undeveloped land or parks but were integral parts of residential architecture and culture through the 20th century.

This presumed long-pervading characteristic of urban form has changed in the past 20 years. The recent construction of collective housing has the minimum open space planned and integrated into the design. It is usually built on the plots with single-family housing, replacing their abundant open spaces with dense built form. At the same time, urban plans do not offer the traditional typology of compact open spaces, such as the new parks, in addition to the trend of building densification. Considering this transformation of collective housing form, the residential open space in the urban area is shrinking, and the culture of the common open space use is reduced. At the city scale, densification and reduction of residential open spaces changes the urban form and reduces its ecological resource.

The research aims to address these problems by studying continuity and change of morphological elements that could help understand the origin of urban form dispersion and inform the spatial regulation on both scales. The morphological relation between the scale of the building and the scale of the city become relevant in urban form theory in the 1960s. An influential book by Aldo Rossi puts *the typology of housing* at the core position of this question. Discussing the concept of the urban whole Rossi's theory emphasised the importance of the relation of a single building to city form [11]. The spatial elements and principles that constitute this relation should be seen through time and, therefore, the permanence and change. The approach was called *the architecture of the city*. Japanese architect Fumihiko Maki took the strategy further and suggested the design principles of collective form, starting with individual elements to arriving at a whole [12].

Contemporary morphological studies of urban housing are usually concerned with the characteristics of the house form and its typological transformation [13], [14], [15]. Consideration of open space as an element of the form is essential for establishing a relationship between the two scales in question and for understanding the dispersed character of urban form. Therefore, this qualitative research will present the types of collective housing form in Banja Luka based on the relationship between the house and open space and their transformation during the 20th and 21st centuries. It will analyse the figure-ground ratio and its configuration and discuss the incidence and quantity of open space as a contributor to the porosity and dispersion of urban form. This study intends to understand and highlight the continually present characteristics of collective housing form and enable the application of positive features of residential heritage in the planning and designing of the new phase of urban and residential culture.

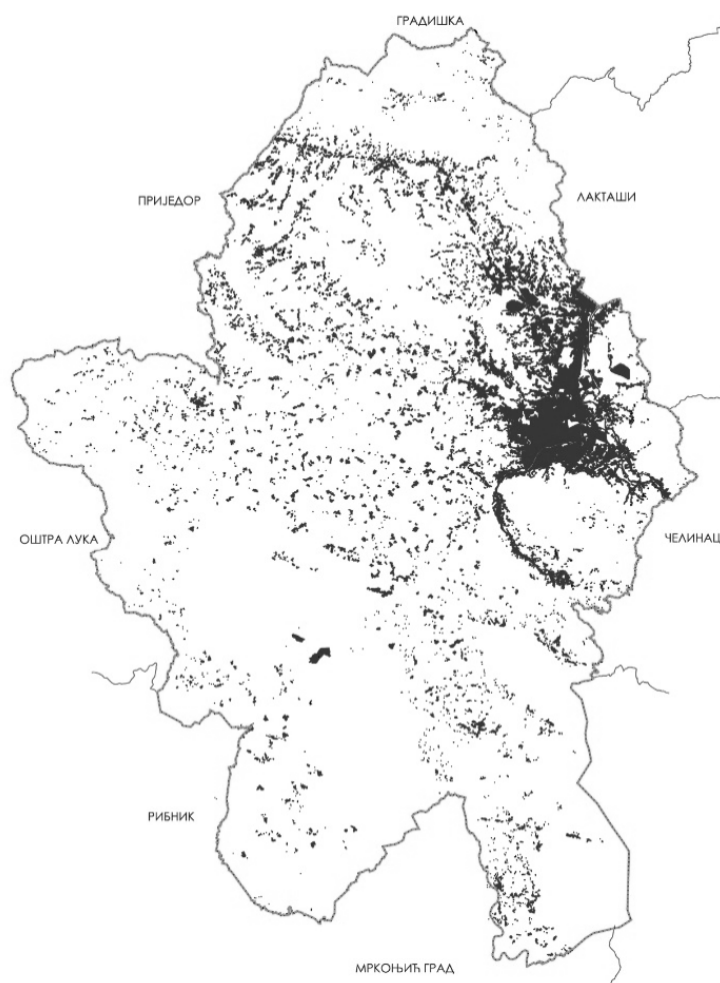


Figure 1. *Dispersed urban form of Banja Luka mapped inside city territory borders (map by students Biljana Petrović and Ivona Knežević)*

2. RESEARCH METHODOLOGY

The research on collective housing in Banja Luka is conducted as a morphological case study [16] based on the figure-ground ratio and its configuration. The reference scales for this study are the building and the block scale. The research is done in two steps. In the first step, we analysed figure-ground maps of Banja Luka and identified types of collective housing. The main criteria for typological classification were position of the building in relation to surrounding buildings - attached or detached volume, and the number of buildings that make the housing form - solitary volume or ensemble of volumes. The second research step describes each pattern through further figure-ground analysis (position of the building in relation to the street and plot coverage), context of building and process of formation (including their correlation to distinct economic issues and architectural paradigms). Context of building is observed through plot sizes (single plot, block, joining the few plots), land ownership, investment - who is building and for whom, what were trends in design - inherited (traditional type of residential living) and reflection on and application of general trends in housing design and culture of collective living coming from European context.

This research was based on several methods: a) figure-ground mapping of generic housing form and related open space as the representation and analysis tool; b) data collecting and content analysis of documents about collective housing in the 20th and 21st century, such as historical and contemporary maps, planning documents, photography, secondary literature; c) field survey as information update, primarily on collective housing from the recent period, included mapping and photography. The plot and building ownership was studied paradigmatically as the history of urban property, based on content analysis of spatial regulation documents, laws, and secondary literature. The analysis of the relation between the housing form and urban form at a larger scale was based on the map study from previous research results about the dispersed urban form of Banja Luka [10].

3. MORPHOLOGICAL STUDY OF COLLECTIVE HOUSING IN BANJA LUKA



Figure 2. Figure-ground map of Banja Luka, segment.

The two figure-ground maps (Figure 1, Figure 2) are showing the spatial openness and dispersed properties of Banja Luka's urban form. Many unbuilt spaces (voids) of different shapes and sizes are embedded in the form of the city 'urban area'. After recognizing the urban form of Banja Luka as dispersed on the city scale, analysis is conducted on the building and block scale observing the figure-ground ratio and spatial layout of collective housing. The first criteria identified through observation of figure-ground maps is building(s) layout. Buildings layout is described and classified through two characteristics: the position of the building in relation to surrounding buildings and the number of buildings that make the whole. From this, three collective housing types were defined: detached housing building, attached housing building, and ensemble.

3.1. DETACHED HOUSING BUILDING

Detached building type is the dominant form of individual housing in Banja Luka and it is present in collective housing, too. It consists of one freestanding building on a small plot, away from the street line and surrounded by an open space (Figure 3). The detached type follows the traditional logic of a single-family house that is compact in form and occupies a central position on the plot. Very often, fences have been set up around the plot. The fence has a territorial role in the domain of the use of open space and not ownership. The figure-ground ratio varies in different periods.

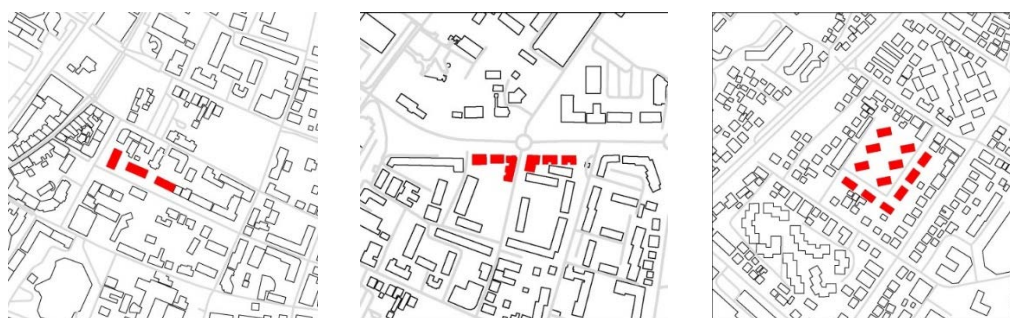


Figure 3. Samples of detached housing buildings in Banja Luka

Detached collective housing buildings were built in the 1930s when the ownership of land and buildings was private. Of course, in the period of private ownership of land and building for rent, the floor area of the building tends to occupy as large area of the plot as possible (Figure 3, drawing in the middle). At this time, wealthier citizens were investing in collective housing buildings. "Given that according to the law on ownership, individual ownership of the apartment was not possible (only houses or entire buildings could be owned) apartments in collective housing buildings were intended for rent.[18, pp.81]" People inhabiting those buildings were members of the ruling class and their higher bureaucracy. Architects educated in Europe bring the first influences of modernism

(smaller plot coverage, more light, and more sun). There is a visible tendency to clear the inside of the blocks and to create smaller green areas. Private investment must pay off so this brings the first signs of standardization and big plot coverage still plays an important role (even though it is smaller than at the beginning of the century). Plot coverage is up to 50% and that allows more light and sun and immediately slightly raises the quality of living [17, pp.10].

In the first years after World War II, there was a great need for housing construction, both due to the destroyed housing stock during the war and the migration of the population to urban centers. Given that the economic situation in society and the state was scarce, housing construction was not large-scale. Until the 60s, spatial changes and the construction of collective housing buildings are happening unassumingly, replacing a few old buildings or building on an empty plot. It is always a single building on small or medium-sized plots. These are individual buildings interpolated into city blocks and empty plots with direct access to the street. The position of the building is different from before World War II. They are detached buildings withdrawn from the street line forming the front yard. Through archival research, we identified some standardization elements. For example, two types of buildings were designed and constructed in several locations in Banja Luka (Figure 3, drawing on the left). One of them, was also built in another city in Bosnia and Herzegovina.

Detached building type is present also in today's housing construction. It is not the dominant type because there is an evident tendency to return to traditional blocks with attached buildings. Buildings are detached but with high plot coverage and positioned at minimal distances from the plot edges.

3.2. HOUSING ENSAMBLE

The ensemble is a type of collective housing form that contains large open spaces, continuously spreading between compact building forms. Intensive housing construction and the creation of a new housing culture in freestanding collective housing buildings, ensembles, or neighborhoods, will begin in the 1960s. Larger housing ensembles were built with unified, compact, and simple residential buildings. There was no clear relationship to the street line. The plot was not an important element in the formation of the building-void or figure-ground relationship. The block is now becoming a construction space. In some cases, the area of construction is a large part of the block (several plots are joined), or it is the whole block or even several blocks are made and new streets are also planned and designed. Collective housing ensembles were designed according to the principles of each composition and each ensemble has its internal logic (Figure 4). Ensembles were built in the central parts of the city and the periphery.



Figure 4. *Samples of collective housing ensembles in Banja Luka*

Preconditions for such housing forms are set by modernist principles of collective housing design and functional city planning, state ownership of land, and regulation of construction through planning, in contrast to the plot scale of construction and regulation in the previous period. Construction land now is state-owned. State institutions together with larger economic entities (again state-owned) invest in housing construction. The reason for intensifying housing construction was the same as in cities across Europe - the large shortage of housing. That was increased due to the consequences of the war and the intensive migration of the population. The migration of people from the countryside to the city in search of work, primarily in the industrial sector, will continue during the 1970s and 1980s. Their spatial and organizational complexity and size have grown over the decades, along with changing funding mechanisms and construction organization, strengthening the ideology of community, and developing an architectural culture. Two other factors especially influenced the activation of mass housing construction in Banja Luka: the establishment of the Institute for Urbanism Banja Luka and the transition of the largest construction company "Krajina" to the IMS prefabricated construction system.

One of the first residential ensembles built in Banja Luka was *Hanište* and its part *Crkvena*, built in the 60s. The ensemble consists of several simple multi-story buildings with an elongated rectangular base and four towers with twelve floors. The towers on *Hanište* are the first buildings of this type built in Banja Luka. The apartments in this neighborhood were constructed for the workers of the local factory. Next to *Hanište*, a much larger neighborhood of *Čaire* was built. The architect Nedžad Hotić, employed in the newly founded Institute for Urbanism Banja Luka, designed the ensemble that contains 17 collective housing buildings. The compositions of both ensembles are formed from elongated buildings with a rectangular base and a height of 4-8 floors, which are positioned in parallel or at right angles one to the other. Between the buildings, there is an open space divided into smaller green areas relatively close to residential buildings, except in the case of four residential towers that stand in two rows in the open space of the block. These collective neighborhoods introduce a new pattern of housing culture in the central part of the city, which involves the use of open spaces of a collective nature [19].

In 1975, the city of Banja Luka got its first major planning document – the Urban plan. The housing of higher densities (over 200 inhabitants/ha) appeared in the Plan. There was a tendency to limit this city function to a more compact zone, with higher densities and engaging smaller territory [20, pp.11]. In addition to the tendency to build housing ensembles of higher densities, there are evident morphological changes such as the development of more complex forms of housing ensembles. Since the end of the seventies, the focus has not only been on the minimum satisfaction of housing needs but also on a higher quality of living. After the necessity, we move on to create spatial conditions for housing of better quality. In that context, ensembles built in the 80s represent the "golden age" of the architecture of collective housing in Banja Luka. Both, the spatial arrangement of the buildings and the boundaries between the building and the open space become more complex (Figure 4, drawing on the left).

There are a few examples of housing ensembles built in Banja Luka in the last 30 years too. However, the figure-ground ratio of those ensembles is different from the ensembles of the 20th century. Differences are most visible in higher plot coverage and accordingly smaller open spaces.

3.3. ATTACHED HOUSING BUILDING

Opposite to the detached building type is the housing form of the attached building on the street line. This type contributed to higher building density, formation of the traditional urban block, and compactness of urban form. However, this type was rare and sporadically built in Banja Luka. As a European model of urban development and building regulation, it appeared at the end of the 19th century but failed to become a local model. One small segment of the city fabric constituted of this type is remain in Banja Luka. It is *Gospodska Street* in the city center (Figure 5, the drawing in the middle).

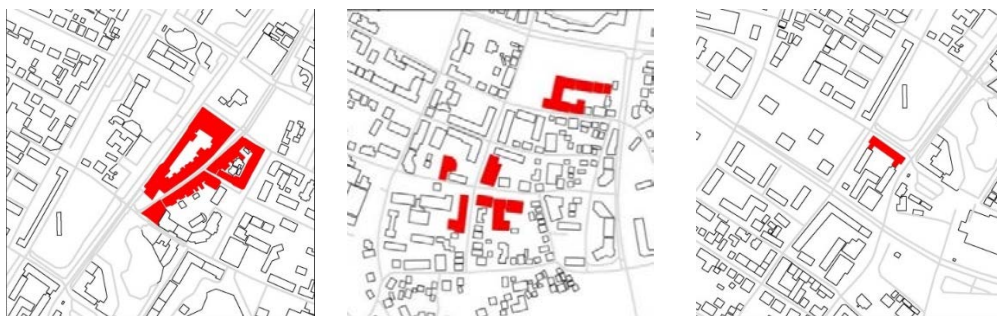


Figure 5. Samples of attached housing buildings in Banja Luka

At the turn of the 19th and 20th centuries, the rule of the Austro-Hungarian monarchy in Bosnia and Herzegovina brought with it numerous changes in all spheres of life. The oriental character of the culture of everyday life and urban structure and architecture has been replaced by the European pattern. More straight lines were introduced into the urban matrix and a new pattern of the mixed-use street appeared. Wealthier citizens, rich merchants, and artisans built residential buildings with more than one apartment. In the beginning, owners were living in the building and renting the rest of the apartments, after World War I those buildings were mainly built only for renting. Collective housing buildings were built on relatively small plots with plot coverage up to 95%. The building was attached and positioned on the street line and a lot of attention was given to the front facade design. Spatial arrangements were the same, but each facade was different from the others. This representational design and renting purpose led to the quite poor quality of living in those buildings.

Apartments in those buildings had little light and little sun. The courtyards were small and dark with no greenery [17].

After World War I, the construction of the attached housing type continues. The shapes and surfaces of each floor were various and depended on the size and shape of the plot. Until World War II, the buildings were up to three floors high [18, pp. 82]. Considering that the apartments were intended for rent, the space is rationally organized, the representativeness from the beginning of the 20th century is lost and the floor height is smaller and much more in human size (Figure 5, drawing on the right). At the end of the 1930s, apartment buildings were built in the narrowest part of the city and often had commercial spaces on the ground floor [18, pp.103-105].

The attached housing buildings were built also during the 1940s and 1950s, mainly in the city center. Although there was a change in land and building ownership after World War II, the housing form did not change significantly. It consists of longer buildings at the street line and smaller open spaces for service use inside the block. The same as the housing form from the Austro-Hungarian period, this variation of attached type is little represented in Banja Luka.

Attached housing buildings were also built at the end of the 1980s following the spirit of postmodernism. Since the 1990s, the individual plot is again the main construction site of collective housing. The plots are small-sized. An individual house's plot is being transformed into a space for a collective housing building of much larger dimensions. Sometimes, several smaller plots of individual housing are combined, so the collective housing building is built on a larger plot, but according to the concept of traditional European block Individual private investors are building collective housing buildings with apartments for sale. They are built one by one on small plots. The need for the investment to pay off in terms of space is shown in the aspiration for as many square meters of living space as possible. This leads to greater plot coverage and higher buildings (Figure 5, drawing in the middle). The houses are positioned on the street line and there is a visible tendency for continuity of street fronts. Streaming towards the traditional block is visible in urban space, but it is visible in planning documentation, too. Return to the traditional block is recognized as an optimal spatial response to the increase in housing density. Since the plots are small, the result is a reduction in residential open space with this more compact form of urban blocks. In most situations, this results in low quality of housing, so we return to the problems of the early twentieth century.

4. DISCUSSION: OPEN SPACE AS THE STRUCTURAL ELEMENT OF FORM

The detached housing type - compact building volume positioned centrally on the plot and distanced from the street line, was dominant in the first half of the 20th century. The origin of the detached housing type still needs to be studied. Its morphological characteristics are significantly different from the earliest urban housing in Banja Luka and Bosnia and Herzegovina. The single-family household groups - *mahala*, were the dominant residential environment from the 16th to the 19th century. The house in the *mahala* had separated volumes distributed on the plot. This configuration organised the residential space according to cultural patterns of dwelling - according to seasons, relations between hosts and guests, men and women, family and community [21][17]. This housing form comes from a specific entanglement of the oriental tradition of Ottoman rule and the local context. However, although the house form is fragmented, the households had an abundant open space, divided into a guest yard, a family yard, a garden and an orchard. These large and green open spaces in *mahala* produced a low population density, which did not exceed 80 inhabitants per hectare [17]. Therefore, the origin of the detached housing type could be searched in the influence of local rural housing and the European model of single-family housing transferred to Bosnia and Herzegovina after its annexation to the Austro-Hungarian monarchy.

In the second half of the 20th century, the detached houses were constructed in groups - ensembles. This collective housing type included larger open spaces and buildings compared to the previous period. It implied open space that continuously spread between compact building forms. Spatial and organisational complexity and size of ensembles have grown over the decades, along with changing funding mechanisms (state and workers' associations) and construction organisation (prefabrication), strengthening the ideology of community and developing an architectural culture. Ensembles were planned and built in the central city area in the first decade of their construction. In the more mature phase, construction is moving to the periphery, demanding more free space. The change of the collective housing scale brought the distinctive transformation of urban form as well. Formal and organisational autonomy of neighbourhoods as distinct urban units occurs only in the second half of the century. Precisely defined groups of collective residential buildings were incorporated into the existing small housing structure. Modernist superblocks are distinguishable by

their geometric clarity and large size and stand out compared to the housing volumes held together by the street matrix and land parcelling (Figure 6).

Open space was continually present in collective housing form during the 20th century. Furthermore, open space was not compact, but contrary, it was diffuse and almost uninterrupted by built structures. Its presence and diffuseness on the small scale contributed to the diffuseness of urban form on the city scale. It is logical to conclude that the openness of the collective housing form is the constitutive element of the urban identity of Banja Luka, which developed during the 20th century as a period of the most intensive growth of the city. Even in the first half of the 20th century, when the construction was on individual private plots and building by building, collective housing form have open space as a structural element. This openness was intensified with the transfer of land ownership to the state and the construction of large housing ensembles. Thus, the modernist principles of open composition represent an almost logical continuation of urban form evolution and not a contrast, as was the case with many European cities.



Figure 6. *Photograph of Banja Luka from 1978. Collective housing incorporated in existing small-scale housing structure [20]*

Dispersed urban form and airy image of the city resulted not just from architectural paradigms but from social and economic circumstances. Bosnia and Herzegovina were predominantly rural until the end of the 19th century. The European model of the compact city was not enthusiastically accepted when historical circumstances allowed its most direct influence at the beginning of the 20th century. There was no economic or social need for a compact city, usually developing from high population density and high land values. Bosnia and Herzegovina and Banja Luka had no phase of congested industrial cities of the 19th century. The detached housing type was transposed from single-family housing to collective housing form and then morphed into modernistic ensembles and neighbourhoods that overwhelmed urban territory. Several factors contributed to the dominant character of the openness of this housing form, beside the modernist principles of collective housing design and functional city planning. They are the state ownership of land and regulation of construction through planning, in contrast to the plot scale of construction and regulation in the previous period. Due to ownership, the land had a predominant use-value, not an economic one, and was available to planners without major restrictions.

The 21st century is characterised by the change of ownership of land and buildings to private one. The apartment becomes a market commodity for the first time. Collective housing is built on individual plots, and the choice of construction plots follows more the market availability and less functional organisation of the city. The result is an illegible and large architectural form that arises

from the pursuit of maximum plot coverage and its shape. These residential buildings and complexes can be unmistakably dated within the urban fabric only based on their massiveness and size. Open spaces do not have a structural role in this housing form but represent a minimal remnant of the undeveloped part of the plot intended for the necessary pedestrian access and parking. Therefore, the last several decades produced the new collective housing type which has the several characteristics of the three types recognised in the 20th century. It is represented by a large architectural form that lies in part on the street line, consisted of several connected volumes, and is detached from the objects in context. Contrary to the above three types, this collective housing form has the least open space.

5. CONCLUSION

Single-family housing was the dominant type of housing during the 20th century in Banja Luka and still is. It is certainly the main generator of dispersion of urban fabric concerning its low density and detached buildings. This research addressed the collective housing form that makes the other 40% of housing stock in Banja Luka to evaluate its morphological role in urban form. The research confirmed that open space was continually and significantly present in collective housing form in all typological patterns during the 20th century. It was not compact, but contrary, diffusely arranged around detached buildings. The diffuseness and openness on the small scale contributed to the dispersion of urban form on a larger scale. Therefore, the typologically described figure-ground configuration should be considered as a continually present component of the urban identity of Banja Luka, as it contributes to the continuance of the inherent urban structure.

The construction of collective housing in the recent period affects the inherited character of the urban form. The housing construction takes place on the scale of the plot, contrary to the large scale undertakings of socialist cities in the second half of the 20th century. The new housing form does not contain open space as a structural element but as a minimal functional component, and it makes a specific break in the morphologically open character of the city. The urban form is changing with a tendency towards building densification and compactness, since the new construction is taking place in previously undeveloped open space or comes in place of single-family housing, in both the urban center and periphery. At the same time, urban plans do not offer the traditional typology of compact open spaces, such as the new parks, in addition to the trend of building densification.

Urban planning should design its visions of urban growth rooted in the comprehension of dispersed urban form. More precisely, its potential and qualities come from the intertwining of built and open space. Otherwise, losing sight of open spaces as structural and compositional elements will not enable the comprehensive development of the territory. On the contrary, it could generate segregation and marginalisation. The human dimension of space is not only obtained through the small-scale design, but on the contrary, it largely depends on the simultaneous view of the city on a larger scale. If we consider open spaces as equally important structuring elements of dispersed urban form, just as built spaces, we might hope for the fresh urban visions of the environment where the culture and nature are in the new unity.

On the other side, the tools for managing urban growth should be associated with small spatial scales, as well. While understanding the contemporary economic and social context, it is necessary to look for new models of collective housing by focusing on the relation between built and open space in their form. This relation should be harmonised with the inherent morphological logic of the city in qualitative and quantitative terms. The new housing form could emerge with appropriate building codes which would accompany urban planning. Future morphological research on collective housing is important in this context. It can bring more detailed knowledge about inherited collective housing forms and local residential culture. The nature of morphological principles enables them to be easily translated into the necessary building codes [21]. Considering the figure/ground ratio and its configuration in collective housing form, the building codes will enable the preservation of the luxury of form openness and maintain the social, cultural and ecological values that open spaces bring to city life.

LITERATURE

- [1] S. E. Bibri, J. Krogstie, M. Kärrholm, "Compact city planning and development: Emerging practices and strategies for achieving the goals of sustainability," *Developments in the Built Environment*, vol. 4, 2020, <https://doi.org/10.1016/j.dibe.2020.100021>.

- [2] E. Burton, M. Jenks, K. Williams, Eds. *The Compact City. A Sustainable Urban Form?*. Routledge, 1996.
- [3] R. Burgess, M. Jenks, Eds. *Compact Cities. Sustainable Urban Forms for Developing Countries*. Routledge, 2000.
- [4] The Organisation for Economic Co-operation and Development, "Compact City Policies: A Comparative Assessment", 2012. [Online] Available: <https://www.oecd.org/regional/greening-cities-regions/compact-city.htm>
- [5] N. Brenner. *New Urban Spaces Urban Theory and the Scale Question*. New York: Oxford University Press, 2019.
- [6] N. Brenner, Ed. *Implosions/Explosions: Towards a Study of Planetary Urbanization*. Berlin: Jovis, 2013.
- [7] M. Topalović, "Architecture of territory. Beyond the limits of the city: research and design of urbanising territories." Inaugural lecture presented by Milica Topalovic on November 30, 2015 at the ETH Zurich. <https://doi.org/10.3929/ethz-a-010794553>.
- [8] P. Vigano, C. Arnsperger, E. Lanza, M. Martina and C. Cavalieri, "Rethinking Urban Form: Switzerland as a "Horizontal Metropolis," *Urban Planning*, vol. 2, pp. 88-99, 2017. doi: 10.17645/up.v2i1.871.
- [9] R. van der Velde and S. de Wit, "The Landscape Form of the Metropolis," *FOOTPRINT*, vol. 5, pp. 55-80, June 2009, <https://doi.org/10.7480/FOOTPRINT.3.2.709>.
- [10] N. Novaković, A. Milaković, D. Simonović, "Properties and qualities of dispersed urban fabric: understanding the Banja Luka urban form," in *International Conference on Urban Planning Proceedings*, P. Mitković, Ed., 2020, pp. 163-170.
- [11] A. Rosi, *Arhitektura grada*. Beograd: Građevinska knjiga, 2008, p. 53.
- [12] F. Maki, *Nurturing dreams. Collected essays on architecture and the city*. Cambridge: Massachusetts London: The MIT Press, 2008.
- [13] M. A. Hermida, N. Juca-Freire and J. P. Carvallo-Ochoa, "Urban tissues and residential types in Cuenca (Ecuador)," *Urban morphology*, vol. 24.1, 2020.
- [14] L. Alonso De Armiño Pérez, G. Vicente-Almazán Pérez De Petinto, VJ. Casañ Llopis, "Housing form and city form: Urban morphology and local identity," in *24th ISUF International Conference. Book of Papers*, 2018, pp. 779-790, <https://doi.org/10.4995/ISUF2017.2017.5772>.
- [15] G. Ledent and S. Komossa, "Referential types as clues for housing design," *Urban Morphology*, vol. 23, no. 2, 2019, pp. 125-142.
- [16] B. Case Scheer, "Urban Morphology as a Research Method," in *Planning Knowledge and Research*, J.W. Sanchez, Ed., Routledge, 2018, pp. 167-181.
- [17] J. Finci, *Razvoj dispozicije i funkcije u stambenoj kulturi Sarajeva*. Sarajevo: Zavod za stambenu izgradnju NR Bosne i Hercegovine, 1962.
- [18] S. Cvijić, *Moderna stambena arhitektura Banjaluka 1929-1941*. Beograd: Zadužbina Andrejević, 2014.
- [19] N. Novaković, *Research into patterns of use of public open spaces for the purpose of neighbourhood regeneration: a case study of the city of Banjaluka (Doctoral dissertation)*. University of Belgrade - Faculty of Architecture, 2014.
- [20] V. Stošić, Z. S. Mačkić, *Banjaluka koje ima i koje nema u 1000 slika. Mega multimedija, digitalno izdanje*, 2004.
- [21] B. Scheer and D. Scheer, "Typology and Urban Design Guidelines: Preserving
- [22] the City without Dictating Design," in *Nineteenth Century Urban Morphology*, Aga Khan Series, A. Petruccioli Ed., Cambridge, MA., 1998.