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QUALITY OF OUTDOOR ENVIRONMENTS IN CONTEMPORARY URBAN HOUSING DEVELOPMENTS. The study of Riga

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ABSTRACT

Considering the essential human needs of contact with nature, outdoor activity, and social interaction, it is crucial to provide high-qualityoutdoor environments where these needscan be met. Moreover, this question of addressing these needs is emerging in the context of housing. Each year, in Riga, the capital city of Latvia, new residential developments are appearing. However, it is unclear whether these developments contribute to increased quality of life and help the city to achieve sustainability. This research focuses on the issues regarding outdoor-environment quality of 21st century housing developments in Riga and aimsto more deeply understand current trends and approaches. Theoretical studies, as well as empiric research methods, were used. The findings of the research indicate that in general, outdoor environmentsare mediocre, and several threats were identified. In order to achieve a higher quality of living conditions, the situation should be improved.

Keywords: outdoor environment, housing, residential development, contemporary architecture
Thematic clusters: 1. City and project **Topic:** Housing and housing project

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Introduction

Latvia, as a part of the European Union, works towards the goal of sustainable development. Riga, as the capital city of Latvia and the largestcity of the Baltic states, plays a significant role in the development of the region. Although Riga is a shrinking city, it nonetheless faces urban sprawl. Riga also faces challenges of housing affordability and lack of investment, among other threats. In this context,high-qualityhousingwithin the limits of the city is one of the prerequisites for ensuring high-quality living conditions, thus stimulating compact spatial development as well as overall sustainability. Although a vast majority of Riga's residents live in large-scale housing estates dating back to the Sovietperiod, new residential areas have also been developed. Previous research has describedthe general state of residential environments, but few researchers have addressed the question of outdoor-environment quality, particularly when it comes to newlybuilt residential developments. In order to evaluate whether these developments contribute to increased quality of life and sustainability, this paper examines several issues related to outdoor environments.

The primary object of research is housing developments built from 2000–2019.50 residential complexes were assessed to determine the situation at large. To be selected, housing projects were required to consist of at least 2 buildings, as one architectural ensemble, with at least 80 apartments. For more detailed research, 6 case studies representing the main trends of development were selected. The research employed theoretical and empirical methods. Field studies of selected cases were used to identify the present state of outdoor environments. To evaluate quality, a checklist adapted from prior literature review was developed and implemented. The analysis of sustainable strategy, statistical data and other sources was used to explore the context of Riga. To determine whether residents are satisfied with their outdoor environment, sociological survey data was analysed. Surveyswere conducted in face-to-face interviews; 72 residents of newlybuilt residential developments took part. Prevalent trends and approaches were identified according to the investigation data. Afterwards, outdoor environmentswere evaluated and compared across location, year of construction and price range.

The hypothesis states that the outdoor environments of Riga's newly built residential developments contributeto ensuring high-quality living conditions and havea positive effect on both resident satisfaction and overall sustainability. This paper defines the following research questions regarding Riga's newly built residential developments: What is the level of quality of new residential developments' outdoor environments? What trends and approaches dominate outdoor-environment design? What similarities and differences exist between outdoor environmentsacross location, price range and year of construction? How have the particular contexts of Riga – economic, social and other factors – affected the outdoor environment? How satisfied are residents with their outdoor environments?

1. The meaning of 'outdoors'

In terms of adequate housing, outdoor environments play a significant role. Through physical planning and design, it is possible to achieve a sense of belonging, foster social cohesion, encourage activity, etc., thus contributing to sustainable development of both neighbourhood and city. Previous research indicates that access to green spaces and recreation areas not only increases social interaction and reduces stress but also promotes intellectual development and physical and emotional wellbeing (Kellert, 2005). According to Jan Gehl, a Danish architect and urban design consultant, outdoor activities can be divided into three types: necessary, optional and social. Necessary activities include (largely) compulsory activities such as waiting for a bus and going to work.By nature, this group of activities is only slightly influenced by the physical

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environment. In contrast,optional activities such as sitting and breathing fresh air can take place only if conditions are pleasant. Therefore, these activities depend on design and planning quality. Social activities include greetings, conversations, passive contacts, etc. These activities occur spontaneously, when people are in the same place, and are consequences of the other two types of activities (Gehl, 2011). Several researchers noteadditional metrics, such as scale and use (Friedmann, 2010), diversity and vitality (Montgomery, 1998). Moreover, urban design is a complex system that includes morphological, perceptual, social, visual, functional and temporal dimensions (Carmona, Heath, Oc, &Tiesdell, 2010). Therefore, the quality of an outdoor environment is determined by a wide range of factors, such as planning and design quality, appropriate maintenance, involvement of residents, formation of community, integration with existing surroundings, and protection and development of natural as well as cultural values (Ramyar, Hayati, Saeedi, &Taj, 2019).Based on a literature review, the primary characteristics of high-quality outdoor areas – limited to the context of residential environments – have been identified. Accounting for the opportunity to collect data through field studies, the following characteristics have been included in the field study checklist(Carmona, Heath, Oc, &Tiesdell, 2010; Kellert, 2005, Gehl, 2011, Montgomery, 1998, [2, 7]):

- Outdoor areas should include activities that fulfil a variety of interests and accommodate various age groups so that the needs of different household types are met.
- Public, semi-public and private areas should be differentiated, and the distinction between such spaces should be intelligible in their design, rather than understood from fences and direct signage.
- Pedestrian, bicycle and motorised vehicle movement should be separated, and speed limits should be applied.
- Other safe-design and security measures should be implemented as necessary.
- Existing natural features should be considered and protected. New natural elements should be variable and reflect climate conditions and other circumstances.
- Environmentally friendly solutions should be employed whenever possible.
- The overall design should foster positive experiences of nature as parts of ordinary life.
- Environmentally accessible solutions should be implemented in order to achieve an inclusive environment.
- Infrastructure should be appropriate for each function. It should be durable, efficient and well-maintainable in the long term.
- Threats inherent to the surroundings should be avoided, whereas positive features should be taken into account as opportunities and sources of added value.
- Although the outdoors of residential environments are primarily meant for the recreational needs of residents, they should also be integral parts of their quarters', neighbourhoods' and cities' urban spaces. Furthermore, they should reflect the local character and complement its identity.
- Participation and initiatives from residents should be encouraged as vital to a sense of community, as well as to citizens' responsibility for their living environment.

2. Riga in Context

2.1. Demographics and housing demand

In the period from 2000–2019, the population of Riga decreased by 17.5%. At the same time, the population of the agglomeration of Riga increased by 3.5% [1]. Riga faces urban sprawl, and around 70% of agglomeration citizens commute to Riga daily (Felcis, Ņikišins&Zača, 2014). Furthermore, in this time period,

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population shrinkage, population aging and an increased number of one-person households have all been observed. In accordance with the Sustainable Development Strategy of Riga until 2030, the population must increase to 700,000 in to ensure sustainable urban development [2]. However, the demographic prognosis anticipates continuedpopulation shrinkage, which will lead to a population of around 540,000 in 2030 (Eglīte, Ivbulis, &Gņedovska, 2012). Considering competition from agglomeration, it is crucial to increase housing affordability within city limits. As stated by the Riga City Council's Housing and Environment Department,increased affordability can be achieved in several ways:extendingand expanding the housing support program, developing the regulation of tenancy ratios and creating opportunities for public-sector rented housing. The implementation of these strategies is expected not only to increase return migration to the city but also to ensure preconditions for further development (Parādnieks, 2018).

2.2. Housing stock and the real estate market

During the last two decades, the real estate market has been influenced by several factors, including changes in bank lending policies, political decisions, etc. During economic growth periods, especially after 2004,the real estate market experienced rapid growth. In 2007, almost 4,000 new apartments were built. However, afterthe economic downturn of 2009, new construction sharply decreased. In recent years, the construction industry has been slightly recovering. In total,from 2000–2019, around 24,000new apartments were built in Riga [3, 4]. Current trends show that developers tend to build more budget-class apartments due to higher demand in that sector [5, 6]. Atthe end of 2018, prices for newly built apartments were between 1,500and 6,000 euros per m^2 [5]. Despite the rather wide range of purchase options, Riga faces an undeveloped rental market. Rent prices in a single neighbourhood are usually 30–40% higher for newly built apartments than those of Soviet-era housing [5]. Furthermore, Riga faces competition from agglomeration because of higher subjective quality of living conditions and lower prices (Felcis, Ņikišins&Zača, 2014).

2.3. Housing standards and outdoor environments

According to the Riga Thematic Plan of Housing Development,dwellingsare closely linked to the environments around them and the space in which they are located. Therefore,housing standards address not only interior characteristicsbut also outdoor environments. This is also a reflection ofthe Riga Strategy of Sustainable Development, which makes quality living and housing one of its goals [2, 7]. Housing standardsare applicable to planning, when evaluating the situation, determining the location of new building territories and humanising existing residential building territories; to developing rules for the construction and use of buildings and territory; and to housing policy, in order to identify goals to be achieved and problems to be addressed when it comes to improving the quality of residential environments. Standards for new apartment building construction include the following requirements for outdoor environments: a minimum of 10 m^2 of greenery per apartment;a children's playground with an area of 5m^2 per child (minimum 25 m^2); a resting place for adults; an active-recreation area in locations without a sports or active-recreation area within a 500m radius; 1 parking place per apartment; 1 sorted waste collection (container) per 6 apartment buildings; bicycle storage (up to 30m from the dwelling), preferably including a bicycle tire-pumping station;a charging station for electric cars [7, 8].

3. Overall outdoor quality assessment of Riga's newly built residential developments

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Taking into account established research and theory, the field study checklist includedthe following groups of outdoor environment elements: activity, circulation, nature, infrastructure and surroundings. These groups were analysedin terms offunctionality, use of materials, aesthetics, seasonality, size and scale.

3.1. Activity

Children's playgroundsat newly built residential developments are equipped with a wide range of basic features:slides, swings, etc. In most cases, however, these facilities offer predefined activities, lacking creativity and opportunities forlearning and exploration. Nevertheless, resident satisfaction with children's playgrounds was 82%. In some cases, facilities included outdoor gyms and areas for basketball or other active sports, which are suitable also for teenagers and adults. Although a lack of active-sport equipment for different age groups has been observed in most cases, this deficit can be compensated by sport facilities in the neighbourhood. Satisfaction with active-recreation facilities was 46%. For passive recreation, sittingareas have been created. These facilities create the opportunity to meet and interact with neighbours, thus creating a sense of community and contributing to social cohesion. Satisfaction with passive recreation facilities was 86%. The use of different activity areas must be understood in a seasonal context. In winter, for example, itbecomes too cold to spend long periods outdoors, especially passively. One excellent example of this seasonality is the *Kaivasiela* 50 project, where the summer volleyball area is used as a skating rink in wintertime. Zoning of different activities depends onproject characteristics such as spatial design and other factors. Additionally, the size of activity zones differs from case to case. In larger projects,one activity zonemight be divided into several smaller zones and spread around the territory of the complex (Table 1).

Children's Playground Project *Bišumuiža*	Public promenade Project *Centrus*	Seating Area Project *Lauras*	Active recreation area Project *NCC mājas*
			

Table 1. Activities of Riga 21st century residential developments. Source: Author.

3.2. Circulation

The factor of circulation can be understood from two angles: type of external access and inner circulation. In 60% of cases, car entry into the project territory was restricted by a protective barrier; in 22%,bygates; in 8%,entry was partially restricted by other infrastructure. Safety precautions were also observed for entering underground or multi-storey car parks. Inside projects, movement of motorized transport was controlled by a speed limit. In 67% cases, there was free pedestrian access to the territory. 18% of cases had fences but allowed partial or full pedestrian access during the daytime. However, 15% of cases were gated communities. Although there are some benefits to such an approach, enclosure may lead to isolation, segregation and fragmented spatial situationswithin the neighbourhood. Access to staircaseswas restricted in all cases by technologies such as intercoms.Elsewhere, circulation is not always throw-out restricted, but is simply observed by security guards and video surveillance. In 60% of cases, video surveillance was used; in 28%, security guards were used in addition to video surveillance (Table 2). Given that residential environmentsare daily used by a wide range of people, inner circulation should be easy and pleasant for everyone, including

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children, the elderly, people with disabilities, families with baby carriages, etc. Therefore, the quality of pathways is important. 88% of residents were satisfied with the quality of the sidewalks and roads in their living environments.

Fenced territory Project *Kuldīgasiela*	Car entry barriers Project *Varavīsknesnami*	Roads and sidewalks Project *NCC mājas*	Entrance accessibility Project *Priedes*
			

Table 2. Circulation of Riga 21st century residential developments. Source: Author.

3.3. Nature

Natural featuresplayan important role in outdoor environments. They not only present an opportunity for contact with nature but also contribute to the microclimate of the outdoor environment. According to current legislation, valuable natural zonesmust be protected,which must be taken into account when new residential developments are planned. Field studies showed that nature zones in newly built residential developments consist of various kinds of trees, located as a cluster or in an alley; bushes, which tend to be located around the border of the territory, thereby creating buffer zones and enclosures; flower areas, which are placed especially around the main entrance and lawns, depending on available territory. Ina few cases where natural resources included water sources, water became a part of the outdoor environment. In some cases, green parking pavement was used. In one social housing project, elderly people cared for small flower gardens, directly participating in the creation and maintenance of their living environment. Resident satisfaction with natural features of their living environments was 83%; with greenery in the yard, that number rose to 90%. Although the general design of green areas is in most cases pleasant, and the chosen greenery ensures a variety of vegetation, a lack of unique solutions and resident participation leads to uniform results (Table 3). The urban area of Riga is rich in forests, greenery and water features that can complement new residential developments. The utilisation of natural resources, as well as the encouragement of residents' participation and involvement, could be an opportunity to establish a link between residents and their living environment, increasing their sense of belonging.

Groups of trees Project *Ulbrokasiela*	Greenery Project *Mārasdārzi*	Waterfront Project *Jaunbiķeri*	Green pavement Project *Brīvībasgatve*
			

Table 3. Nature of Riga 21st century residential developments. Source: Author.

3.4. Infrastructure

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In order to ensure activities, security and a pleasant outdoor experience, it is crucial to provide an appropriate infrastructure. Infrastructure must be not only well planned but also wellmaintained. Bicycle parking spaces are mostly located near entrances or at enclosed areas on the ground floor. However, residents' overall satisfaction with bicycle parking places was around 45%. For car parks, various spaces have been used: ground-level areas, underground parking, multi-storey parking houses, or mixed solutions that vary by individual project. Resident satisfaction with car parking areas was 67%. Regarding garbage, field studies showedthat for special areas have been designated for containers. However, waste-sorting containers have not always been provided, reducing resident contributions to a sustainable lifestyle. 88% of residents were satisfied with the quality of sidewalks and roads in their living environments, and 99% were satisfied with lightningduring dark periods. Only 25% of residents who owned a dog were satisfied with dog-walking areas,which indicates a lack of infrastructure for pet owners. The overall quality of infrastructure for resident recreation differs from case to case. In more luxury developments,more expensive approaches to exterior developments are taken. These are also more durable in the long term. Although less expensive solutions are also found in good condition, alack of well-maintained outdoor infrastructure can be seen in older projects (Table 4).

Waste-sorting area Project *Rembatesnami*	Car parking Project *Mežaciems*	Outdoor equipment Project *Skanstesvirsotnes*	Outdoor equipment Project *Solaris*
			

Table 4. Infrastructure of Riga 21st century residential developments. Source: Author.

3.5. Surroundings

The quality of outdoor environmentsmust be assessed in the context of surroundings. The external factors that characterize the quality of the living environment, such as water bodies, railways, etc., can be difficult to change. Nonetheless, certainconditions can be changed, including service provision, provision of public transport, etc. [7]. Air pollution is one of the factors that influences the quality of outdoor environment. PM_{10}(coarse particulate matter) and NO_2(nitrogen dioxide) levelsare monitored all across the city. 82% of the 50 research objects are located in a level-III PM_{10}pollution zone, which contains less than 28 μg/m^3 of PM_{10}, but 18% of cases are located in level-II zones with 28–40 μg/m^{3}of PM_{10} [9]. 4% of these research objects are located in level-I NO_2 zones with more than 40 μg/m^{3}of pollution, and 16% are in level-II zones with pollution of 32–40 μg/m^3, but the vast majority, 80%, are in level-III zones with less than 32 μg/m^3 of NO_2pollution[9]. 83% of residents weresatisfied with the air quality of their living environments. Noise pollution is also a factor;the average noise level at newly built residential development surroundingsreaches 57 dB during the day and 50 dB at night [10]. 89% of residents were satisfied with the noise levelsin their yards during the daytime, and 79% were satisfied with the noise level at night. A final factor influenced by location is safety. Resident satisfaction with the safety of their residential environment reached 89%.

The element of 'surroundings'refers not only to how the newly build residential development has been influenced by its surroundingbut also how it influences its surroundings. This is especially true in the context of

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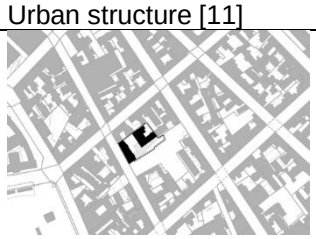
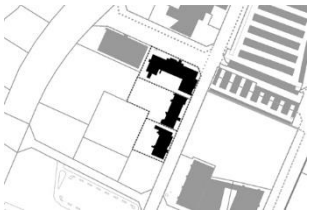
historical heritage. The Riga historical centre (along with its buffer zone) is a UNESCO world heritage site, which earns it certain protections.Consequently, all new construction must be undertaken in accordance with special regulations. Although new developments also outside the protected area should also be in harmony with existing surroundings, fragmentation, gentrification and a lack of integration have been observed (Table 5). New developments, in combination with their surroundings, should incubate a sense of belonging. 56% of residents felt that they belonged to their residential environment.

Newly developed area*Skanste*	Nature of Riga city	Riga Old Town	Soviet-era buildings
			

Table 5. Surroundings ofRiga 21st century residential developments. Source: Author.

4. Main trends and approaches

Details related to 6 exemplary projects, which represent the main trends and approaches regarding the outdoor environment of Riga's newly builtresidential developments, can be seen in Table 6.

Key data [12]	Urban structure [11]	Photo [Author]	Description
Centrus Free-market housing 2 buildings 82 apartments Finished in 2015			Historical area Limited territory Semi-private inner yard Public promenade on the side of the territory
Skanstesmājas Free-market housing 3 buildings 271 apartments Finished in 2015			New development in the centre of Riga city Variety of outdoor equipment Attention is also paid to a range of greenery areas
Biķerziedi Free-market housing 6 buildings 450 apartments Finished in 2018			Existing residential neighbourhood Linear outdoor spaces in between buildings Several fenced children's playgrounds

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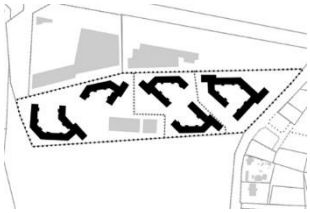
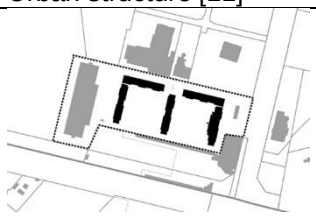
Key data [12]	Urban structure [11]	Photo [Author]	Description
Imantas 8. Līnija Social housing 3 buildings 287 apartments Finished in 2014			Existing residential neighbourhood Active as well as passive recreation options Broadly used environmental accessibility solutions
Kaivasiela 50 Free-market housing 5 buildings 630 apartments Finished in 2009			Periphery of the city Building form and layoutcreates inner yards Extensively paved territory Some activities customised to seasonality
Ulbrokasiela Social housing 5 buildings 792 apartments Finished in 2011			Periphery of the city Outdoor space divided into 2 parts by building arraignment Extreme proportion of building height to free space

Table 6.Projects exemplary of main trends and approaches of Riga's newly built residential developments. Source: Original creation based on data from [12, 11].

These empirical observations are presented in detail in order to allow for a deep understanding of the current state of affairs, as well as to serve as a solid foundation for further research. Evaluation of these data is crucial to the identification of issues arising in completed residential developments'; these issues can reveal gaps in theory, legislation and design practise. Further analysis of these findings may help to improve legislation, development strategies, design standards and guidelines. The overall investigation, as well as detailed research on 6 case studies, shows similarities and differences that depend onthree main factors: construction year, price range and location.

4.1. Construction year

Housing projects constructed in the first decade of the 21st century were driven mostly by a real estate market bubble, which led in some cases to poor quality of both the development and its outdoor environment. Field research showed that middle-class projects finished before 2010 tend to have mediocre outdoor conditions and lack of appropriate maintenance. After recovering from the economic downturn of 2009, the construction industry faced not only changes in policies but also new resident preferences and increasing quality-of-life standards. These changes necessitated new approaches in outdoor environment design. More attention began to be paid to green spaces, areas for bicycle storages, waste sorting, etc. Althoughfield research indicated that outdoor-environment quality is increasing with every decade, standard solutions are still usually applied.

4.2. Price range

Newly built residential developments can be divided into several price ranges thatare indicative of some differences when it comes to outdoor environments. Field studies showed that the outdoor spaces of social housing have larger use burdens than do free-market housing projects, mostly due to the fact that residents

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spend most of their time within the limits of their residential environment. Outdoor spaces of social housing projects also reflect household characteristics. For example, social housing more often uses environmental accessibility solutions for the elderly. In some cases, the field studies also indicated resident participation, as with the creation of flower gardens. Economy-and middle-class free-market residential projects use relatively standard solutions for outdoor environments; for those projects, the effects of construction year and location aremore prevalent. At luxury projects, however, the design of outdoor spaces and infrastructures is more unique. Moreover, equipment is more expensive and made with more durable materials, which pays off in the long term. At luxury projects, the effects of construction year and location areless noteworthy.

4.3. Location

Around 15% of newly built residential developments are created in the central part of the city.These can be divided into two groups: those which are located in the historical centre (and its protective zone) and those which are located in the newly developed *Skanste* area. Developments in the historical territory facenot only a very limited area but also special restrictions unique to the heritage-protection zone. In these cases, outdoor space needs are only partially addressed within the limits of the project,while the rest are met by surrounding features such as nearby parks and other public recreational areas. Meanwhile, the newly developed *Skanste* area is large enough to accommodate a wide variety of outdoor recreational zones. The vast majority (70%) of newly built residential projects are located in existing residential neighbourhoods with infrastructures ready for use. However, projects sometimes exceed the capacity of existing infrastructure and overburden it. Moreover, the field studies indicated that newly built developments often fail to address existing obstacles. One major factor is that the restoration of older residential developments is rare and, even when it occurs,separate from new developments. Around 15% of newly built housing developments are located in peripheral areas of Riga. These projects tend to be larger in scale due to the high availability of territory. Although they occupy larger areas and they have relatively more space for recreation needs, the field studies showedthat the effect is mostly an increased amount of free space, rather than a greater range of zoning or variety of activities.

5. Conclusions

Riga’s residential environment has been influenced by several factors, including historical development, socio-economic situation, population shrinkage and implementation of sustainability concepts. This study identifies that the outdoor-environment quality of newly built residential developments is, in general, mediocre. Although the basic needs of nature, activity and social interaction are met, broad usage of standard solutions, lack of appropriate maintenance and resident participation do not allow the achievement of higher-quality living conditions.

Research findings showthat the most common outdoor designelements are playgrounds for children, outdoor seating areas, waste-sorting container zones, lighting equipment, video security,parking spaces and greenery zones. However, the quality of these elements varies from case to case.Theresearch results indicatea correlation between outdoor-environmentquality and several influencing factors: construction year, price range and location. Recent projects have better outdoor-environment quality due to several factors, including higher expected quality of life and new policies and standards. In luxury projects, usage of unique and higher-quality solutions has been observed. Projects that are located in the city’s periphery are larger in scale due to the presence of more available territory. However, in terms of outdoor environments,this mostly means an increased quantity of free spaces, rather thana broader variety of zoning and activities. The results

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ofsociological surveys indicate that in general, residents are satisfiedwith the quality of their outdoor living environments, especially as regards lighting. However, residents are still dissatisfied with areas such as car parks and dog-walking areas.

In general, it can be concluded that althoughthe first steps towards betterliving conditions have been taken, several obstaclesprevent achievement of the best results.The current situation should be improved in order to guaranteea high-quality housing supply within city limits, thereby preventingurban sprawl and helping to achieve the goal of sustainability.

6. References

Carmona, M., Heath, T., Oc, T., &Tiesdell, S. (2010). *Public Places Urban Spaces, Second Edition: The Dimensions of Urban Design* (2nd ed.). Amsterdam, Netherlands: Amsterdam University Press.

Eglīte, P., Ivbulis, B., &Gņedovska, I. (2012). *DemogrāfiskāsprognozesRīgāunPierīgā*. Retrieved from http://www.sus.lv/sites/default/files/media/faili/demografiskas_prognozes_riga_un_pieriga_rd_lza_2012.pdf

Felcis, R., Ņikišins, J., &Zača, E. (2014). *Pierīgasiedzīvotājudzīvesvietasizvēleskritēriji : Pētījumarezultātuatskaite*.Retrievedfrom http://www.sus.lv/sites/default/files/media/faili/lu_szf_rd_pierigas_iedzivotaji_atskaite_par_petijumu.pdf

Friedmann, J. (2010). Place and Place-Making in Cities: A Global Perspective. *Planning Theory & Practice*, *11*(2), 149–165. https://doi.org/10.1080/14649351003759573

Gehl, J. (2011). *Life Between Buildings: Using Public Space* (Sixth). Amsterdam, Netherlands: Amsterdam University Press.

Kellert, S. R. (2005). *Building for Life: Designing and Understanding the Human-Nature Connection* (2nd ed.). Amsterdam, Netherlands: Amsterdam University Press.

Lynch, K. (1981). *A Theory of Good City Form* (First Edition). Amsterdam, Netherlands: Amsterdam University Press.

Montgomery, J. (1998). Making a city: Urbanity, vitality and urban design. *Journal of Urban Design*, *3*(1), 93–116. https://doi.org/10.1080/13574809808724418

Parādnieks, I. (2018). *Mājokļupolitika*. Retrieved from https://www.pkc.gov.lv/sites/default/files/inline-files/1_pielikums_I_Paradnieks_Majoklu_politika_05042018_DLC.pdf

Ramyar, R., Hayati, Z., Saeedi, S., &Taj, M. M. (2019). Evidence of Poor Environments in Shared Outdoor Spaces of Residential Complexes in Iran. *Polish Journal of Environmental Studies*, *28*(3), 1335–1345. https://doi.org/10.15244/pjoes/84870

6.1. Electronic sources

[1] http://data1.csb.gov.lv/pxweb/lv/iedz/iedz__iedzskaits__ikgad/ISG020.px (Accessed: 09/12/2019)

[2] http://www.rdpad.lv/wp-content/uploads/2014/11/ENG_STRATEGIJA.pdf (Accessed: 08/12/2019)

[3] http://data1.csb.gov.lv/pxweb/lv/arhivs/arhivs__a_buvn__ikgad/A_MAG030.px/ (Accessed: 02/10/2019)

[4] https://data1.csb.gov.lv/pxweb/lv/rupnbuvn/rupnbuvn__buvn__ikgad/BUG050.px/ (Accessed: 08/12/2019)

http://dx.doi.org/10.5821/siiu.9922

[5] https://www.ober-haus.lt/wp-content/uploads/Ober-Haus-Market-Report-Baltic-States-2019.pdf (Accessed: 05/10/2019)

[6]http://latio.lv/en/services/market-analysis-and-review-1/housing-market/167/majoklu-tirgus-parskats-2019-1-pusgads-latio-eng.pdf (Accessed: 03/12/2019)

[7]https://www.rdpad.lv/wp-content/uploads/2017/10/majoklu/Paskaidrojuma%20raksts.pdf (Accessed: 17/09/2019)

[8]https://www.rdpad.lv/wp-content/uploads/2017/10/majoklu/8_pielikums_Majokla%20standarts.pdf (Accessed: 08/12/2019)

[9] https://mvd.riga.lv/uploads/piesarnojuma-kartes/index.html (Accessed: 11/10/2019)

[10] https://mvd.riga.lv/uploads/troksna_kartes/Kluso%20rajonu%20karte/Kopejais/ (Accessed: 15.10.2019)

[11] https://www.kadastrs.lv/# (Accessed: 12/09/2019)

[12] https://www.city24.lv/lv/jaunie+projekti (Accessed: 15/12/2019)