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INTRODUCTION

For more than a year, a brutal war has been raging around the world, destroying Ukrainian land and lives. The ground is increasingly covered with trenches, graves and ruins. In the face of Russia's hatred and devastation, the authors of the publications continue to maintain positivity and hope for the victory of light over darkness in their research.

Glory to Ukraine!

The most satisfying contribution to our journal comes from Ukrainian researchers. One of the publications deals with the issues of improving the comfort, efficiency, ergonomics and aesthetics of the design of the architectonic environment in relation to global human challenges. The moral and spiritual values and strength of the young Ukrainian researchers are admirable, standing above the scourge, and their ability to encourage people to think about creating a harmonious environment for human existence.

Ukrainian researchers have also looked at historically famous Poltava Manor and its old park, with its scenic, hydrological and dendrological features. The manor is located between Kyiv and Kharkiv, towns that could fall under Russian occupation. Insecurity and pain for values threatened with ruthless destruction.

Our new edition is characterised by a great diversity of research. The authors speak of the care that must be taken at every moment to preserve the historical and to prevent hatred, suffering and death from entering the 21st century. There is no need to build razor wire fences and spend huge amounts of money on ammunition to destroy people and their homes.

Historical cultural landscapes are the foundation of every nation's living space – this is evident from the research of several scientists at our university. Aizpute, Saldus, Tukums, Kuldiga, Auce, Bauska, Jelgava – cities with a strong heritage of the old Duchy of Courland and the development of modern technologies, which are increasingly rapidly undergoing transformation processes, changing the identity of a place and its iconic values.

This is also true of the old Malpils Castle and its picturesque park, where the research in a broad cultural and historical context is still relevant. This is where architectural research comes in, with a visual inspection, a survey and a sounding. The combination of historical sources, morphological material and data from stratigraphic outcrops provides an integrated analysis of the tectonic and formal aspects of the site. Architectural and artistic studies are carried out to ascertain the cultural, historical and artistic value of old buildings. A reasoned decision is then taken on the future

PRIEKŠVĀRDS

Jau vairāk kā gadu pasaulē plosās nežēlīgs karš, postot Ukrainas zemi un ļaužu dzīvības. Zemi aizvien vairāk pārņem ierakumu tranšejas, apbedījumi un drupas. Plosoties Krievijas naidam un nestajam postam, publikāciju autori savos pētījumos turpina uzturēt pozitīvismu un cerību gaismas uzvarai pār tumsu.

Slava Ukrainai!

Vislielāko gandarījumu mūsu žurnālam dod Ukrainas pētnieku pienesums. Viena no publikācijām skar jautājumus par arhitektoniskās vides dizaina komforta, efektivitātes, ergonomikas un estētikas paaugstināšanu, kas saistīts ar cilvēces globālajām problēmām. Apbrīnojams ir Ukrainas jauno pētnieku morāles un garīgo vērtību pacēlums un spēks, kas stāv pāri postam, un spēja rosināt ļaudis domāt par cilvēka eksistencei harmoniskas vides veidošanu.

Ukrainas pētnieki ir arī aplūkojuši vēsturiski slaveno Poltavas muižu un tās veco parku ar ainaviskām, hidroloģiskām un dendroloģiskām vērtībām. Muiža atrodas starp Kijivu un Harkivu – pilsētām, kuras var krist Krievijas okupācijā. Nedrošība un sāpe par vērtībām, kurām draud nežēlīga iznīcība.

Mūsu jaunajam izdevumam ir raksturīga liela pētījumu daudzšķautnība. Autori vēsta par rūpi, kas ir jāuztur ik mirkli, lai saglabātu vēsturisko, un nepieļaut 21. gadsimtā ienākt naidam, ciešanām un nāvei. Nav jāceļ dzelondrāšu žogi un nav milzu naudas jāizdod par munīciju, lai iznīcinātu ļaudis un to mitekļus.

Vēsturiskās kultūrainavas kalpo par katras nācijas dzīves telpas pamatni – par to vēstī vairāku mūsu universitātes zinātnieku pētījumi. Aizpute, Saldus, Tukums, Kuldīga, Auce, Bauska, Jelgava – pilsētas ar spēcīgu vecās Kurzemes hercogistes mantojumu un mūsdienu tehnoloģiju attīstību, kuras aizvien straujāk ienes transformācijas procesus, mainot vietas identitāti un tās ikoniskās vērtības. Tas ir attiecināms arī uz veco Mālpils pili un tās gleznaino parku, kur aizvien aktuāla ir pils izpēte plašā kultūrvēsturiskā kontekstā. Minētajai problēmai talkā nāk arhitektoniskā izpēte, kuras ietvaros tiek veikts objekta vizuāls apsekojums, uzmērījums un zondāža. Vēstures avotu, morfoloģiskā materiāla un stratigrāfiskos atsegumos iegūto datu savietošana nodrošina objekta tektonisko un formālo aspektu integrētu analīzi. Arhitektoniski mākslinieciskо izpēti veic, lai noskaidrotu veco ēku kultūrvēsturisko un mākslinieciskо vērtību. Tālāk tiek pieņemts pamatots lēmums par objekta turpmāko attīstību, statusu un saglabāšanas risinājumiem.

Līdzās vēsturiskā bloka pētījumiem, šodien katrā Latvijas pilsētā ir aktuāli radīt pusaudžu

development, status and conservation options for the site.

In addition to the historical block studies, today it is important to create an environment suitable for the needs of adolescents in every city in Latvia, which is by no means easy. There is a need to understand the developmental processes, emotional and psychological characteristics of adolescents, as well as to update the basic principles of democratic upbringing in society, including in the planning of public spaces, and to develop guidelines for the involvement of adolescents in urban planning. The Ogre study clearly demonstrates that the expression of the natural environment and the possibilities of preserving it in close proximity are very useful for this emotional and psychological upbringing of adolescents.

Lithuanian researchers share similar views, underlying that theoretical and empirical research on the urban environment is essential for assessing the quality of landscape architecture projects in relation to sustainability principles. The projects highlight the need, specificities and problematics of cultural and communication activities in the field of architecture, using research on architectural projects funded by the Lithuanian Council for Culture.

In this publication, a study by Eastern scientists examines the historical aspects of architectural ornament, linked to the evolution of ornament from West to East.

vajadzībām piemērotu vidi, kas nebūt nav vienkārši. Ir nepieciešams izprast pusaudžu attīstības procesus, emocionālās un psiholoģiskās attīstības īpatnības, kā arī aktualizēt demokrātiskas audzināšanas pamatprincipus sabiedrībā, tostarp publiskās ārtelpas plānošanā un izstrādāt vadlīnijas pusaudžu iesaistei pilsētplānošanā. Pētījums par Ogri spilgti pierāda, ka minētajai pusaudžu emocionālajai un psiholoģiskajai audzināšanai ļoti spēcīgi noder līdzās esošā dabas pamatnes izteiksme un tās saglabāšanas iespējas.

Līdzīgās domās ir arī Lietuvas pētnieki, akcentējot, ka pilsētvides teorētiskās un empīriskās izpētes darbs nes būtisku ainavu arhitektūras projektu kvalitātes novērtēšanu saistībā ar ilgtspējības principiem. Projektos izcelta kultūras un komunikācijas aktivitāšu nepieciešamība, īpatnības un problemātika arhitektūras jomā, izmantojot Lietuvas Kultūras padomes finansēto arhitektūras projektu izpēti.

Mūsu izdevumā austrumvalstu zinātnieku pētījums aplūko arhitektonisko ornamentu vēsturiskos aspektus, kas saistīts ar ornamenta evolūciju no rietumiem uz austrumiem.

Aija Ziemeļniece
Editor in Chief

CONTENTS

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The Ogres Zilie kalni park urban forest management

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Abstract. The impact of the Covid-19 pandemic demonstrated the importance of urban forests for human well-being at a time of tight constraints, when large forests close to urban areas were in high demand. Increased use affects the management of territories. Urban forests play an important role in providing ecosystem services. Urban forests show a close link between ecosystem services and forest functions. A literature review was carried out, exploring the ecosystem services and specific urban forest services provided by such territories. This article examines the experience of the Ogres Zilie kalni during the Covid-19 pandemic, taking into account the peculiar functions of urban forests. Different types of recreation that take place in the Ogres Zilie kalni, and their impact on park management are discussed. The aim of the article is to analyse and present the challenges of urban forest governance and management under the influence of Covid-19, looking through the functions of urban forests. Taking into account the classifications of ecosystem services available in Zilie kalni, zoning and assessment of the territory have been carried out. Cartographic material has been created based on practical experience and employee interviews.

The practical experience of territory management gained during Covid-19 is important and should be taken into account in the future development of green spaces, respecting the new habits of visitors potentially affected by the pandemic, where one of the most important proposals is to develop more small localised recreation areas on smaller paths.

Key words: Urban forests, Covid 19, ecosystem services, planning documents, management of urban forestry

Introduction

Forest areas are one of the main providers of ecosystem services, contributing in many ways to the provision and maintenance of ecological processes [1]. Such areas, regardless of the type of urban forest [2], contribute to the Sustainable Development Goals (SDGs) and provide a wide range of opportunities of use of forest areas for people's needs [2; 3], most often for recreation, leisure, exploration, sports, berry or mushroom picking and enjoying nature. Urban forests and natural areas in general are an invaluable asset for promoting people's physical and mental health [5; 6], which was particularly important during the Covid-19 pandemic, when pressures on such areas increased manifold, raising questions about the suitability of the management model and user infrastructure for such areas in a changing environment. The increased awareness of the role of public green spaces in everyday life is a huge benefit that was experienced during the Covid-19 pandemic, which will also contribute to more effective action in future disease and pandemic outbreaks [7]. The Covid-19 pandemic has highlighted the need to provide accessible urban green spaces to meet the needs of different population groups [7]. Pandemics have changed the way populations interact with the surrounding environment [8]. During the pandemic, developed locations where one-way traffic could not be ensured, such as Cena Moorland Footpath, were closed [9]. These were followed by other natural objects to which access was denied, such as various lookout towers and footpaths. Unfortunately, during the period from December 2020 to May 2021, basically all natural sites with boardwalks, lookout towers and other restrictive infrastructure were closed. And as of the end of May 2021, those environmental facilities were opened which could ensure one-way and/or circular traffic [10]. The Ogres Zilie kalni lookout tower was also closed during this ban, but people used the tiniest walking trails that have not been previously noticed.

People's desire to use natural areas more and more for active and passive recreation, regaining strength, exploring new places, has been not only influenced by the pandemic, but also by climate change, when we increasingly appreciate the gifts of nature and the need to take care of it.

The Ogres Zilie kalni nature park is a well-known natural area with extensive recreational opportunities. During the Covid 19 pandemic, the area was particularly used for walking and other activities allowed during the restrictions.

The aim of the article is to analyse and present the challenges of urban forest governance and management under the influence of Covid-19, looking through the functions of urban forests.

For implementation and integration the latest insights from Covid 19 into the management of the Ogres Zilie kalni, it is necessary to analyse the new patterns of amenity use, assess their sustainability and the need to redesign and change the amenity. It is important to assess the experience of the agency's staff in planning and implementing various development projects and to update it with the latest scientific knowledge.

Materials and Methods

In order to be able to assess the conditions and challenges of urban forest governance and management, an analysis of the literature was carried out, highlighting the main ecosystem service functions and uses provided by such areas. The assessment of situation regarding changes in the management of urban forest areas was carried out for one of Latvia's urban forest areas – the Ogres Zilie kalni nature park, which is widely visited and popular with both local residents and tourists. The site has undergone both legal and management changes, influenced by various factors, including the effects of the pandemic, assessing visitor flows and trying to find the best and most efficient solutions for the management of the site.

Analysing the theory about the main ecosystem services available in the Ogres Zielie kalni nature park, a functional classification the territory was created. Further research consisted of surveys of the territory, interviews and assessment of Covid 19 influence on the park management. Schematic cartographic material was created based on the classification of ecosystem services available in the territory and practical experience of park management

The study analysed the laws and regulations governing the management of the Ogres Zilie kalni nature park. The stakeholders and interested parties involved in the management and use of the Ogres Zilie kalni urban forest area were also identified and analysed through interviews with Agency and municipality specialists, non-governmental organisations representatives (Agency project manager, Ogre Tourism and Information Centre, society "Nesēdi mājās").

The Ogres Zilie kalni nature park is a 312 ha urban forest located between Ogre and Ikšķile. The Ogres Zilie kalni provide the widest range of ecosystem services. Some parts of the forest are located right next to multi-storey housing and are intensively used for people's daily outdoor recreation. The territory of the urban forest is a specially protected nature area - the nature park Ogres Zilie kalni, which is also a Natura 2000 site protected at European level. The Ogre Municipality Agency has been established for the purposeful management of the urban forest area. Most of the territory historically belongs to Riga City Municipality, although it is located outside the territory of Riga. The territory is supervised by the Nature Conservation Agency, which monitors all specially protected nature territories in Latvia. At the suggestion of the Nature Conservation Agency, a nature management plan is drawn up for specially protected areas, setting out the main lines of action aimed at conserving and enhancing biodiversity and providing recreational resources for visitors. The Ogres Zilie kalni are in a special situation, with specially protected biotopes located right next to multi-storey residential estate in Ogre city. The protected area is widely used by the residents for their daily recreation and sports. The area is actively used for school trips and by other interested visitors, accompanied by guides and teachers.

Results and Discussion

We use the resources provided by ecosystems all the time and everywhere - at work, on vacation, in education and even just breathing the air that surrounds us. Ecosystem services are the environmental, cultural, historical, social and economic basis of our lives.

Ecosystem services are all the resources and processes that nature provides for people. Usually we speak about provisioning, regulating or supporting, cultural or intangible ecosystem services [11]:

1. Provisioning services are vital for our existence – food, raw materials of all kinds, fresh water, medicinal resources.
2. Regulatory and support services ensure climate and air quality, prevent natural disasters, prevent erosion and maintain soil fertility, habitats for species, maintain genetic diversity.
3. Cultural or intangible services are essential for people as thinking, social and creative beings – recreation, mental and physical health promotion, tourism, aesthetic inspiration. Cultural or intangible ecological services are essential in urban forest areas - the widest range of outdoor recreation, promotion of mental and physical health, tourism, aesthetic enjoyment and inspiration from natural landscapes.

The availability of all the above ecosystem services can be found in the Blue Mountains. Certain ecological services are particularly important and need to be developed. A specially protected area is primarily a habitat for species and a place to preserve genetic diversity. With reference to the Ogres Zilie kalni Nature Conservation Plan, [12] the area is primarily a habitat for typical species of Latvian forests and 18 rare species of vascular plants (*Arenaria procera* Grass-leaved sandwort, *Dracocephalum ruyschiana* Northern Dragon-head, *Onobrychis arenaria* Hungarian Sainfoin, *Peucedanum oreoselinum* Mountain parsley, *Platanthera bifolia* Lesser Butterfly-orchid, *Pulmonaria angustifolia* Cowslip Lungwort, *Pulsatilla patens* Spreading Pasqueflower; *Trifolium alpestre* Trefoil Clover - species personally observed by I. Kraukle).

Urban forests are also associated with many environmental and economic benefits, including improved air and water quality, noise reduction,

flood control, prevention of soil erosion, reduction of urban heat islands and increased property values. The costs of maintaining the system such as treeplanting, upkeeping, ensuring the recreation function, have to be taken into account.

Nowadays, in terms of urban forests, we can no longer speak of traditional forestry, but of social forestry, whose main tasks are related to the provision of social functions and services [13]and environmental education [14]. Every year, the Ogres Zilie kalni nature park serves as a training and survey site for architecture and landscape architecture students, who not only learn and educate themselves from what they see in the park, but also make certain proposals for the improvement and development of various sites. In 2020, in collaboration with Riga Technical University students, certain proposals were developed with a number of noteworthy ideas, but the need to create various pavilions and shelters for visitors to relax emerged in all the works.

As A.Alexis points out, more and more studies are showing that urban forests contain patches of relatively high biodiversity [15], which is also considered to be one of the functions of urban forests.

Urban forests are classified in different ways, both in terms of their uses and their functions. One division of urban forests is given by Konijnendijk and Nilsson, who point out that there are two large groups:

Biological or natural forest resources that can develop without human intervention.

Recreational forest values that require deliberate human intervention for their development and use [16].

In practice, a general classification of forest functions is most commonly used with three cornerstones: economic, social and ecological functions, with the economic component being the first [17]. Along with urbanisation, changing demographics and lifestyles, the importance of urban forests have also increased, with a shift in the distribution of functions [13; 14].

According to A.N.Akmar, C.Konijnendijk and other authors, the social function has become the most important one nowadays - urban forests are places for active and passive recreation, sports, gathering of wild harvest, provide an opportunity to enjoy the beauty of nature, serve as a natural laboratory for scientists and researchers, protect unique species [13; 14].

The second most important function of urban forests is environmental provision and climate regulation: urban forests regulate water flow and water quality, improve and stabilise soils, provide habitat for wildlife, dispose of debris, act as noise and wind attenuators, regulate climate, microclimate, absorb carbon dioxide and act as a major carbon sink [13]. “Observations show that on a warm sunny day, 1 ha of forest releases 150-220 kg of oxygen, which is enough for 40-50 people to breathe, by sequestering 220-280 kg of carbon dioxide” [18]. Air quality improvement functions also include the enrichment of air with phytoncides and its ionisation, whose beneficial effects on human health are well recognised and widely used in health resorts [19].

The third is the economic function, which importance has greatly reduced and can be exercised to the extent that it does not contradicts with all the others. Urban forests also produce and store usable raw materials - wood, green matter from various plants, mushrooms, berries, leaves, sap, which can be used both by people and by domestic and wild animals, birds, fish, amphibians, insects.

There is also a distinction between inherent and acquired functions of forests [17]:

The inherent functions of forests, which derive from the nature of forest: productive, i.e. the production of material goods; territorial, i.e. carrying; regulating function; information (storage) function; aesthetic function; cultural and historical function.

The acquired functions of forest are defined by legislation or rules, and can also be considered as targeted functions. For example, protected areas, buffer zones.

As a further subdivision in the detailed analysis of forest areas, it is useful to distinguish between the internal and external functions of forest territories. Internal functions are those that occur within the boundaries of the forest, inside the forest - primarily all the functions of the forest environment and, in some cases, also acquired functions. External functions are those that are formed by the forest expanse as a whole and are expressed outwards from the forest - the role of the forest edge in shaping and enclosing landscape spaces, in the flow of migration of substances [17].

When assessing and planning an urban forest as a multifunctional system, it is essential to assess different functions in terms of their compatibility or incompatibility and to clearly identify compatible and incompatible functions in order to further assess which of them will be dominant and therefore determine the type of forest management [17].

Considering an ecosystem services approach, a number of intrinsic functions of urban forests can be identified. The spatial manifestation of urban forest functions depends on the relationship between forest and human activity. Urban forests are located at a point of particularly intense human-forest interaction. In urban and peri-urban forest environments, the social function and recreation in particular will become the most important and

dominant function in determining the management practices of particular forests.

Based on theory, previous experience and field studies, the authors identify six key functions of urban forests: social, environmental, environmental education, nature conservation, aesthetic and economic.

Distribution of urban forest functions in the area of the Ogres Zilie kalni complex, everyday situation (Figure 1). An essential role belongs to the social function of recreation and sports, provided by amenity areas (1.1), paths and tracks (1.2). Historical evidence (1.3) adds to the range of social functions in the area. The environmental function (2) is fulfilled by the urban forest as a whole. The environmental education function (3) is fulfilled by individual routes, where children's trips and training are most often held. Nature conservation function (4) covers the whole area of the nature park, the map shows the nature reserve area, which requires more attention in management. The aesthetic function of the forest (5) is more pronounced in the areas near the Dubkalni reservoir and in the light pine forests, which, in a relatively closed forest landscape, nevertheless allow to see a sufficiently wide visually attractive surroundings. The economic function (6) can potentially be realised by logging in the area outside the nature park. Sanitation cutting is also possible in the nature park, but it is more exceptional. Mushrooming and berry picking are counted as both social and economic functions, but are not shown in Figure 1. The mushrooming and berry picking sites are shown in Figure 2.

1. Social functions. Today, urban forestry is no longer about traditional forestry, but about social forestry, whose main tasks are to provide a wide range of recreational functions and services. The forest is the most suitable place for active and passive recreation, various types of popular and professional sports, especially for maintaining a healthy lifestyle - systematic walks, Nordic walking, jogging, skiing, cycling. The Ogres Zilie kalni already have a sports and recreation infrastructure - existing walking trails and forest paths are maintained, and a 10 km illuminated cross-country ski trail has been created. Improvements to the Dubkalni water reservoir have been made and will be developed in the future. It is planned to improve the surface of the busiest paths with gravel/dolomite chippings. There is a need to improve the bicycle paths that are heavily used and to create a bicycle park.

The forest still allows the expression of one of the oldest human activities - gathering bounty of nature – berry picking, mushroom picking, using other natural materials, which today is no longer a matter of survival, but allows us to relax from everyday worries, connect with the oldest instincts and simply be close to the natural processes. In the Ogres Zilie kalni, berry picking and mushroom picking are very common and most often part of a walk.

Urban forests provide an opportunity to enjoy the beauty of nature even for people living in an urbanised environment. Urban forests allow or make you philosophise, to contemplate that a dead, half-decayed and moss-covered tree trunk or a scarred water spout can be beautiful in nature – we cannot use it, but for someone it is their only home.

The ability of forests to hide and protect unique places and historical evidence that would otherwise be destroyed by intense human, wind or water activity has been noted as a social function, as exemplified by the strong traces of trenches preserved not only from World War I, but also from much earlier times. A nationally protected hillfort "The Ogres Zilie kalni – hillfort" (State List of Cultural Monuments – No 1861, protected since 1998) [12] is found in the Blue Mountains, as well as World War I trenches and other historical evidence.

2. Environmental functions. In particular, woodlands regulate water flow and water quality. As rainfall increases, the ability of woodlands to slow and balance the movement of rainwater, preventing it from flowing rapidly into water bodies and causing flooding, is essential.

The continuous formation of a layer of herbaceous vegetation and its complex root system improve and stabilise the soil and prevent wind erosion. The ecosystem of forests, including urban forests, is mostly composed of wild plants and provides habitat for wild animals, insects, amphibians, micro-organisms, which in turn provide for the disposal of various biological remains and other processes as a result of their life-sustaining activities.

One of the most important environmental functions of urban forests is that of sanitation and hygiene, and they are considered to be the most accessible and useful to society. This is reflected in the ability of forests and other green spaces to reduce the concentration of carbon dioxide in the air, to bind it and use it to support life processes, and at the same time to enrich it with oxygen.

Today, when global warming is constantly being discussed, with hot temperature fluctuations, stabilising the temperature and humidity regime in cities - hot in summer, cold in winter - is very important. Climate change is also bringing stronger winds, from which even relatively small areas are physically protected by trees and shrubs. Sufficient green spaces in urban environments reduce the heat and draught effects of thermal plumes. Noise reduction around city motorways, streets and industrial areas is also increasingly important.

As an urban forest, the Ogres Zilie kalni regulate water flow and water quality, stabilise soil, provide habitat for wildlife, act as a noise and wind buffer, regulate climate, microclimate, absorb carbon dioxide, act as a major carbon sink, enrich the air with phytoncides and ionize it.

Figure 1. Urban forest functions in the Zilie kalni complex, daily situation

No.	Designatiom	The six essential functions of urban forests	Characteristics	Location
1.1		Social function	Places with amenities	Sites scattered throughout the complex
1.2		Social function	Trails and tracks	Trails and tracks scattered throughout the complex
1.3		Social function	Historical evidence	Some historical evidence readable in the terrain
2		Environmental function	All natural areas	Entire complex area
3		Environmental education function	Educational routes	Trails and their immediate surroundings
4		Nature protection function	Nature conservation area. The strictest protection zone	The entire nature park area
5		Aesthetic function	Visually attractive forest, waterscapes	Extensive forest, water areas
6		Economic function	Forest areas with potential for logging	Complex area, outside the nature park
7	—	Ogres Zilie kalni nature park border		
8	----	"The agency for development of the Zilie kalni tourism, sports and recreation complex" managed area outside nature park borders		

Fig. 1. Urban forest functions in the Ogres Zilie kalni complex, daily situation [created by authors]

3. Environmental education functions. Environmental education is an important function that has emerged in recent years. Urban forests are like a specific natural laboratory. They provides research opportunities for scientists and researchers and calls for the best answers for conservation and development of the environment, using the latest scientific findings. Educating the public about the main patterns of the forest ecosystem, information about the processes occurring in the forest stimulates public interest and willingness to go to forest. Public participation in litter pick activities and competitions promotes environmentally friendly behaviour and reduces the negative anthropogenic impact of holidaymakers in urban forests. Diligent forest visitors do not litter the forest with small household waste, do not allow the idea of dumping waste in the forest, are careful during the fire season, are careful even with small plants in the forest if they have planted tiny tree seedlings themselves, which not only the forester, but also the participant of a litter pick is waiting for to grow up. Raising awareness of the importance of sustainable forest management is essential. The Blue Mountains host various environmental education events, litter picking activities and trips that provide environmental education.

4. Nature protection functions. Recently, nature protection functions have also become more prominent in urban forest planning and management.

Many species have adapted to living in urbanised environments. Urban forests contain large areas of high biodiversity. A striking example is the Ogres Zilie kalni nature park in Ogre, where various protected biotopes, plants, insects and birds can be found throughout its territory, for more information see the nature protection plan [12].

Urban forests have areas with the priority of protection of natural values (species and habitats). Pin planning for urban forest development, including recreational use, an influx of people into such areas would not be encouraged. However, where areas are particularly popular for recreation, the highest possible level of amenity can serve to protect the environment.

Nowadays, the conservation of a natural asset is often misunderstood as preservation, which often leads to its disappearance, as most modern ecosystems require wise human management.

5. Aesthetic functions. Forests in and near cities have a high scenic and aesthetic value. Even if the existing landscape is not of high quality, it can be significantly improved by maintaining it. The forest stands out in contrast to the urban environment as an element of the natural landscape and is valuable by its very existence. The urban forest as a landscape element separates the individual urbanised parts, preventing their complete fusion, but in turn weaves the individual urban elements into the overall urban structure and pattern, which then, together with the buildings and inhabitants, creates the characteristic image of each city. Forest areas screen unpleasant views, allowing even relatively small areas to accommodate a variety of land uses - such as manufacturing, health and education facilities, housing and recreational areas. The Ogres Zilie kalni have long been famous for their attractive pine forest landscapes and distinctive topography of the narrow hills, as well as pine groves, deciduous areas, small marshes and the Dubkalni reservoir, which make the overall landscape interesting and full of surprises.

6. Economic functions. Forest areas produce and store usable raw materials such as wood, needle, fruit and berries, mushrooms. Today, the use of urban forests is less about timber extraction and more about faster regeneration, maintenance after pest or disease infestation, and improving their scenic value through various coppicing and landscaping activities. The collection of non-timber forest materials such as mushrooms, berries, leaves, twigs, roots and saps for human consumption is seen more as a social recreational function, as the ecological state of the urban environment does not always allow the urban forest products to be used for food.

Urban forests produce food and other materials for domestic animals and wildlife, as well as birds and fish, to sustain an ecosystem that must withstand greater anthropological pressures and require more careful maintenance than other forests, which can more fully express their capacity to maintain and regenerate their autonomous system.

In the territory of the Ogres Zilie kalni, outside the nature park, logging is potentially possible, and it is necessary to carry out salvage logging throughout the complex area to remove dead and dangerous trees. The Ogres Zilie kalni have extensive and popular mushroom and berry picking areas, where visitors in late summer and autumn disperse virtually throughout the area.

Visiting the urban forests in the territory of the Ogres Zilie kalni complex (Figure 2). Daily visits (1) – used for places with facilities, main paths and tracks. Seasonally, during berry picking and mushroom picking season (2) the landscaped areas are used, as well as the main trails and tracks, and in addition all forest areas where mushrooms and berries grow, regardless of trails. During the Covid-19 pandemic (3), the observation tower could not be visited. The main trails were full of visitors. To avoid contact with other people, small trails are used throughout the territory, even where mushroom pickers and berry pickers do not go, the existence of trails is important.

Wise land management is needed to ensure that the above functions work. As an example, the territory of the Ogres Zilie kalni and the legislation regulating its management are considered:

The Law on Nature Conservation establishes the administration and management of the Ogres Zilie kalni nature park. A nature park is an area that represents the natural and cultural values of a particular locality and is suitable for public recreation, education and upbringing. Recreation and economic activities in nature parks shall be organised in such a way as to ensure the preservation of their natural and cultural heritage [20].

Interested parties

The management of the territory is carried out by the Nature Conservation Agency of the Ministry of Environmental Protection and Regional Development [20] (Section 25), which also organises and coordinates the monitoring of protected areas. The development of the Nature Management Plan is supervised and coordinated by the Vidzeme Regional Administration of the Nature Conservation Agency, and its implementation is promoted after its approval. The Ogres Zilie kalni nature park does not have its own public administration body. Control of environmental protection and use of natural resources is exercised by the State Environmental Service (Lielrīga Regional Environmental Board of the State Environmental Service).

Compliance with forest management laws and regulations is monitored and sustainable forest management is ensured by the Riga Regional Forest Inspectorate of the State Forest Service.

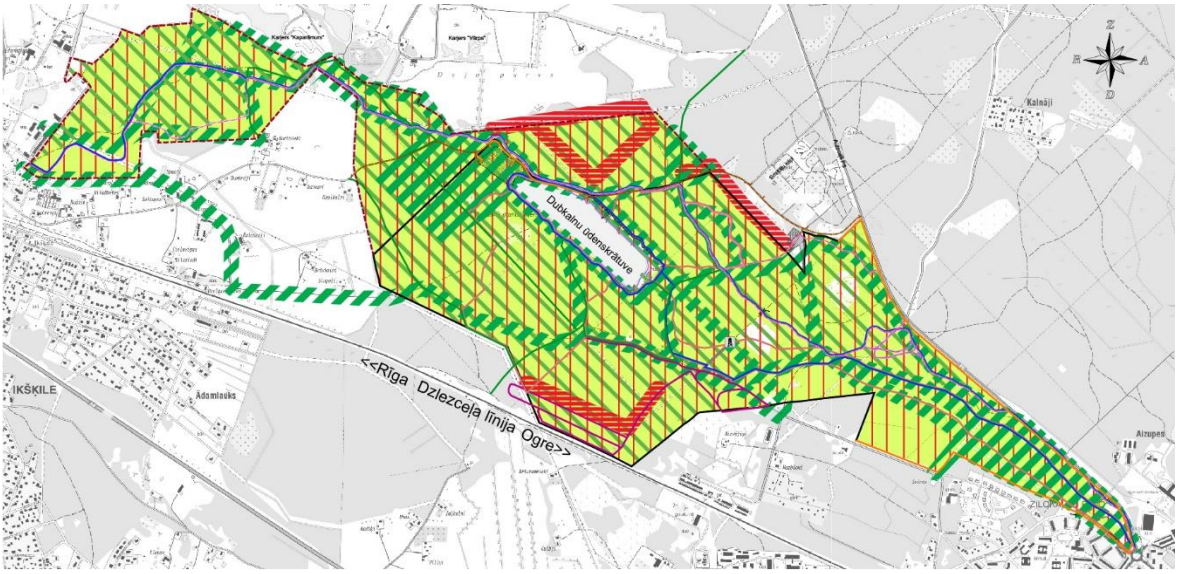

Figure 2. Visiting the urban forests in the territory of the Zilie kalni complex

No.	Designation	Visits to urban forests	Characteristics	Location
1		Daily visits	Places with amenities, paths and tracks	Places with amenities, main paths and tracks
2		Seasonal during mushroom and berry season	All forest areas where mushrooms and berries grow, regardless of trails	All suitable forest areas in a continuous line. Trails and tracks are used to get to the chosen mushroom picking and berry picking spot
3		Visits during the Covid-19 pandemic	It is forbidden to visit the observation tower. Places with amenities, main paths and tracks, all minor paths.	Vietas ar labiekārtojumu, galvenās takas un trases, sīkās takas visā meža teritorijā
4	—	Ogres Zilie kalni nature park border		
5	----	"The agency for development of the Zilie kalni tourism, sports and recreation complex" managed area outside nature park bordersm		

Fig. 2. Visits to the urban forests of the Ogres Zilie kalni complex [created by authors]

Owners and operators:

The management of the site and compliance with the rules for its protection and use are ensured by the owner or user of the land [20] (Section 24). The owners of the urban forest area in the Ogre Ogres Zilie kalni nature park and the entire territory of the complex are limited liability company of Riga City Municipality SIA Rīgas meži and Ogre Municipality. On the basis of a long-term lease agreement, the management and development of the territory is carried out by the Ogre Municipality Agency "Tūrisma, sporta un atpūtas kompleksa „Zilie kalni" attīstības aģentūra" (The agency for development of the Zilie kalni tourism, sports and recreation complex).

The main focus areas of the managers are integrated management, multifunctional use and ecosystem sustainability. The Agency has defined medium-term strategic objectives, divided into administrative, social, environmental area [21].

The objectives of the administration area are to ensure effective governance for a sustainable enterprise and to create a regulatory framework for effective governance and environmental protection.

The social area includes 3 strands. Creation and development of environmentally friendly landscaping infrastructure for quality tourism, sports and recreation services. Enhancing knowledge of the social environment, cultural history – for a better understanding. Public involvement and information about the complex - to promote participation.

The aim of the environment area is to preserve natural diversity for the sustainability of Latvian and European ecosystems and to increase the value of the environment.

Recreation

Recreation, as one of the essential social functions of the forest, is one of the main, traditional and enduring uses of the Ogres Zilie kalni. The urban forests within the complex provide recreational opportunities for people of all ages and physical condition. The main users of the territory are the residents of Ogre municipality, tourists from surrounding municipalities and Riga, visitors from Latvia and abroad. The complex is an important place for athletes, regularly used for training and competitions (runners, Nordic walkers, cyclists – XCO cyclocross, Dovnhil, skiers, orienteers, biathletes, sled dog racers).

Recreational opportunities in the Ogres Zilie kalni can be divided into several groups according to their activities, need for facilities and infrastructure. The impact of recreation types on the urban forest area and the intensity of management varies.

The largest group of holidaymakers indulge in **unorganised, low-activity recreation.** People regularly go for walks in the park to enjoy nature and the forest. There is a significant group of pleasurers who go outdoors with children of different ages. This recreation was particularly active during Covid 19 in 2020 and 2021, when many recreation areas had restrictions on visitation. Although the Ogres Zilie kalni area was freely accessible during Covid-19, people made much more use of the small forest trails, which have not been noticed previously, putting extra strain on the environment. Unfortunately, people also brought litter into the large area, which used to be collected mostly along the major paths and at the Dubkalni reservoir. There was a huge influx of cars on the forest roads and they had to immediately organise traffic using parking restrictions.

Dog walking is one of the most common types of walking. On the eastern edge of the nature park, in the territory of Ogre city, and especially in the vicinity of the Ogres Zilie kalni housing estate, dozens of people walk their dogs every day.

Unorganised active recreation – individual jogging, walking, Nordic walking - these activities are mainly associated with the eastern and central part of the complex, but since the beginning of 2015, with the creation of a skiing track, activities have also extended into the western part, increasing activity on the Ikšķile side.

Cycling has become increasingly popular in recent years. Individual cyclists train throughout the park, but the greatest flow of riders is in the western and central parts of the park, where the articulated terrain is also suitable for mountain biking.

Unorganised skiing covers the whole area of the park. In 2016-2020, 10 km of floodlit cross-country skiing trails linking Ikšķile and Ogre have been created. In good snow conditions, skiers from Riga, Salaspils and other places come to the Ogres Zilie kalni. Thanks to systematic maintenance, cross-country skiing is regaining popularity and attracting more and more people of all training levels. Even during the Covid 19 restrictions, the ski track continued to operate as it was possible to comply with the cross-country rules due to the large forest areas.

The open corridors on the steep slopes of the hills are traditionally used by a small number of people for downhill skiing, snowboarding, tobogganing and other riding. Rides in these areas are spontaneous and disregard safety. Security barriers are often destroyed. A solution is still being sought.

In the less visited areas of the complex, horse riding with horses from the nearby stables (Mangaļi, Birzītes, Zaļkalni) takes place. In 2017, some approved areas for horse walking in the southern, south-western part of the park have been marked to reduce the risk of collisions. Sometimes walking or cycling paths or ski tracks are used for horse riding, which causes disagreements between users because the surface of the path is significantly damaged by horseshoes, a fast cyclist can spook a horse, a pedestrian can be frightened by a horse, etc. To minimise conflicts of interest and dangers for different users, the network of paths and trails shall be separated as far as possible and defined in the binding rules [22].

In recent years, the association “Sniega suņi” (Snow Dogs Association) has been organising dog sledding rides in the complex to train the dogs, which are now also offered for the entertainment of visitors. Dog sledding rides take place in the less used south-eastern part of the nature park, in some places creating the possibility of collisions between horse riders, dog walkers, pedestrians, joggers and cyclists. To prevent this, dog sledding trails were marked in 2017.

After gravel extraction ceased in a gravel pit in 2003, a water body formed. Swimming in the Dubkalni quarry is very popular, as well as recreational activities on the ice in winter. The water body is also used by divers and anglers. During the swimming season, lots of people relax by the water. Even in the cold season, there is a wide range of swimmers who especially appreciate the boardwalk and stairs in the water, which make it easier to make an ice hole.

In the territory of the nature park near Ogre, there is a rope adventure park, Giant’s Trail (Milžu taka), which was created on the basis of a long-term contract by SIA MGH.

In 2017, SIA Velo SKI also started renting electric bicycles and skis at the ski track starting platform, providing visitors with easily accessible rental services not only in Ogre, but also in the territory of the nature park.

Organised active recreation and sport

Currently, all competitions and training are coordinated with the Agency and carried out in accordance with the law. To reduce the negative environmental impact of the races and training, the 1 ha starting platform established in 2014 is used as the starting point for the races. Previously, the area had turned into a rubbish dump, which was removed as a result of landscaping work.

When planning competitions, it is necessary to take into account Part 5, Sub-paragraph 12.2 of the Nature Protection Plan of the Ogres Zilie kalni park, which states that it is prohibited to cross the nature reserve zone of 142 sq. for the participants of sector 2, 5, 6 public events, whose movement takes place off the paths and roads, and the rest of the zone – if more than 40 participants take part in the event. The checkpoints required for the competition shall be located in such a way that the areas included in the reserve do not have to be crossed by the participants during the competition. In particular, these rules apply to the non-location of orienteering checkpoints in nature conservation areas, as orienteers often navigate without using the trail network, which creates additional anthropogenic pressure.

Initially, it was necessary to promote the newly created amenities. In 2015, the Agency started organising the Ogres Zilie kalni Triathlon, which included skiing, running and cycling competitions. Until 2017, the popularity of sports infrastructure among organisers of sports competitions has grown significantly. It was already decided in 2018 that the Agency would no longer organise sporting events, but would carefully consider permits for sporting events organised by other organisers in order to limit the impact on the environment and the created infrastructure. The restrictions during Covid in 2020 and 2021 effectively minimised the number of traditional competitions. Some activists organised unconventional competitions, which could be done individually.

Running and orienteering are popular sports at the complex. Runners and orienteers train and compete on the ski slopes, major trails and forest roads. The race series “Apkārt Zilajiem kalniem” (Around the Ogres Zilie kalni) has been popular for many years, as well as school competitions at regional and national level, as well as the “Reljefs” (Relief) orienteering competition. In 2017, the trail-running series “Stirnu buks” (Roe Buck) was held at the complex for the first time.

Since 2008, the park has seen a rapid development of cycling, including MTB mountain biking. For cyclo-cross races, the ski trails are mainly used. The most well-known cycling events, which also include the territory of the complex, are the MTB cycling trails, which are minimally maintained for the time being. To reduce soil erosion, trail markings have been placed and critical sections of the trail surface are being repaired. In some places, MTB, XCO and Downhill cycling enthusiasts are arbitrarily creating trails and trail facilities without taking into account nature protection and safety requirements. Considering this high demand, the possibility of a dedicated track, with sections of varying difficulty for cyclists of different abilities, is being considered

If motorised vehicles are not used, events and competitions can also be organised on the ice of the water body subject to sufficiently thick ice.

Unauthorised recreation. Unauthorised forms of recreation in the protected area can be still found in the territory of the complex. In some cases, quadricycle, motorcycle and car drivers enter unauthorised areas, leave roads and drive on or off tracks, trails, glades and, in rare cases, on ice in winter.

Conclusions

Having analysed the situation in the nature park, it is clear that the main management actions of the Agency should remain integrated management, multifunctional use of the territory and sustainability of the ecosystem. To ensure the sustainable development of the nature park in the future, it is necessary to elaborate a development strategy for the area, maintaining the defined administrative, social and environmental objectives. When developing the strategy, it is important to identify the interests and opportunities of various stakeholders (Ogre Municipality, land owners, residents of the municipality, visitors from other nearby municipalities such as Salaspils, Stopini, Riga, tourists from Latvia and abroad, sports organisations and NGOs, nature conservation institutions, etc.).

The previous planning documents of the municipality and the Agency are relevant. New insights into the development of the territory have been taken into account in the analysis of the previously identified action plans of the strategy, which include activities that have not yet been implemented. In order to judge the changes in the situation in the territory of the complex, the six essential functions of urban forests should be taken into account: recreational, environmental, environmental education, nature conservation, aesthetic and economic. When assessing these functions, it can be seen that they overlap throughout the territory of the nature park, especially in the areas of the created amenities.

Good ideas are being found in cooperation with universities training young professionals in planning, landscape architecture, architecture, design and arts.

In summarising the impact of the Covid 19 pandemic, the Agency's experience and recent studies have highlighted the importance of urban green spaces in promoting the physical and mental health of urban residents. Recent findings on the Covid 19 pandemic, which requires extensive areas where large numbers of visitors can stay at a sufficient distance, should be taken into account. We can no longer develop only large sites that bring together large numbers of people, we need to develop many small trails and individual recreational opportunities.

It is now clear that further development of the site's infrastructure can only take place through the comprehensive development of amenities. The existing infrastructure can no longer ensure that the existing number of visitors does not adversely affect the habitats in the area. A large number of visitors demand improved minimum services – parking, leisure areas, benches, rubbish bins, toilets, accessibility for people with special needs.

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Kopsavilkums. Covid–19 pandēmijas ietekme parādīja pilsētmežu lielo nozīmi cilvēku labsajūtas nodrošināšanā strikto ierobežojumu laikā, kad plašās, urbānām vietām pietuvinātās meža teritorijas bija īpaši pieprasītas. Palielinātā noslodze ietekmē teritoriju apsaimniekošanu, atgādinot, ka pilsētmežu teritorijām ir būtiska loma ekosistēmu pakalpojumu nodrošināšanā, un uzsverot, ka tāpēc jo svarīgāka ir šādu teritoriju pareiza plānošana. Pētot pilsētmežus, redzama cieša ekosistēmu pakalpojumu un mežam piemītošo funkciju ciešā saite. Pētījumā veikta literatūras avotu analīze, apskatot ekosistēmu pakalpojumus un specifiskās pilsētmežu funkcijas, ko šādas teritorijas nodrošina. Rakstā pētīta Zilo kalnu pieredze Covid–19 pandēmijas laikā, ņemot vērā pilsētmežiem piemītošās funkcijas. Kā būtiskākā pilsētmežam piemītošā funkcija, kas ietekmē apsaimniekošanu, ir apskatīta rekreācija, tās dažādie paveidi. Raksta mērķis ir analizēt un iepazīstināt ar urbāno mežu pārvaldības un apsaimniekošanas izaicinājumiem Covid–19 ietekmē, raugoties caur pilsētmežiem piemītošajām funkcijām. Vadoties pēc Zilajos kalos pieejamo ekosistēmu pakalpojumu klasifikācijas, veikts zonējums un novērtējums. Izveidots kartogrāfiskais materiāls balstoties uz praktisko pieredzi, darbinieku intervijām. Covid–19 laikā uzkrātā praktiskā pieredze teritorijas apsaimniekošanā ir svarīga un jāņem vērā zaļo teritoriju turpmākā attīstībā, respektējot apmeklētāju jaunos paradumus, ko potenciāli ietekmējusi pandēmija, kur viens no būtiskākajiem priekšlikumiem ir vairāk attīstīt nelielas lokālas atpūtas vietas uz mazākām takām.

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The planning of green infrastructure using a three-level approach

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Abstract. In recent years, global research in spatial planning has focused on the sustainable development of green infrastructure (GI) in order to reduce the consequences of urbanization processes on the ecological, socio-economic and visual quality of the environment. Problems with stormwater management, floods, storms and global warming in general are just some of the reasons why GI planning has gained popularity. According to other current strategies (EU Biodiversity Strategy, EU GI strategy, Green Deal initiatives, etc.), GI plans, which include social, economic and ecological aspects, are being developed for territories of different scales. Until recently, green infrastructure was just an added value to real estate, but today it plays a completely different, much more important role. In Europe, the GI planning process has already begun, with several European countries developing GI plans in urban environment, different scales across country and even at national level.

Depending on the scale chosen, the principles of GI planning differ. In European examples, GI is considered in large-scale regional landscapes, where the green network and connections are formed from natural areas, but at the urban scale, the creation of GI goes hand in hand with the creation of a green network in the city, connecting the largest green areas with each other (squares, parks, urban forests, etc.). However, in the scientific literature, the basic principles and the correlation of GI planning at different scales have not been widely studied and analyzed. Therefore, the purpose of the article is to define the main principles in the planning of GI in Latvia using a three-level approach. Each level corresponds to a specific scale of the territory, starting with the regional scale, moving to rural and urbanized areas and concluding with the site scale. Each lower level is subordinated to the highest, thus forming a single GI planning system. At each level, GI key planning principles and prerequisites to be considered are defined.

The town of Aizpute, its neighboring villages and rural areas in Latvia were chosen as a case study territory for the article. Article discusses the planning of GI in the context of three levels and also the different approaches of GI planning in the rural and urban landscape.

Key words: GI, green network; spatial planning, three-level planning

Introduction

In recent years, more and more attention has been directed to the creation of green infrastructure (GI), green network or greenspace concepts and their positive impact in both urban and rural areas. It is highlighted and noted by several strategic documents – the EU Biodiversity Strategy for 2030, the EU GI Strategy and A European Green Deal [1; 8; 30]. The definition of GI can be explained as a mutual system of green structures that preserves the values and functions of the natural ecosystem and provides benefits to humanity [4; 28]. The issues of creating GI are closely related to nature protection and ensuring biological diversity, as well as obtaining social, cultural and economic benefits from natural resources. The industrialization of agriculture, the restructuring of land use, the construction of large transport networks and the expansion of cities have caused serious fragmentation of natural territories, loss of natural habitats and extinction of species, especially in densely populated European cities [9; 19]. Nowadays, there is more and more discussion about the processes caused by climate change, which also means greater threats of storms and floods. One of the solutions is to integrate rainwater accumulation, drainage and infiltration systems into the GI. The creation of well-thought-out GI in the urban environment also provides opportunities to reduce CO_2 and harmful emissions from transport, as it promotes the movement of citizens in an environmentally friendly way and improves public health in general. One of the ways to promote the public's stay in the outdoor space and its active use is the integration of pocket parks into the GI [20].

GI planning at different scales

Analyzing the theory and scientific articles on different scales of GI planning in natural and urban landscapes, it is possible to distinguish the main constituent elements, functions and benefits of GI, which are summarized in Table 1. The approaches to the creation of GI in the planning of territories of different scales are different and are determined by the goals and regulatory framework of each country, region or city. Although examples of GI creation for landscapes of different scales are common, GI as a system that integrates different levels – from regional to local - is not so widespread in practice. England [17] is one of the examples where such a system has been created, which includes landscapes of different scales, as well as all aspects – ecological, economic, cultural and social.

TABLE 1

The most frequently mentioned GI constituents and their benefits in theory and scientific articles

	Planning scale	Main elements of GI	Benefits and outcomes
National/ regional level	The National and regional planning level	Large-scale linkages (river corridors, forest massifs and belts, etc.) between important, larger green structures (natural parks, reserves, larger forest massifs, etc.) In certain cases, buffer zones with a lower intensity of use are applicable, which complement the GI	Ecological linkage Creation of a regional recreation network using linkages as movement corridors
	[6; 13; 14]		
County/ City level	The county planning level	The green network, which consists of separate larger forest massifs, water areas, natural meadows, etc. natural territories and biocorridors (edges of watercourses, alleys, natural vegetation strips separating properties, etc.).	Ecological linkage Improved biodiversity Reduced environmental threats – wind and water erosion The social and cultural benefits of GI at this level of planning, especially in rural areas, are scarcely addressed in the literature
	[6; 11; 13; 18]		
	Cities and villages	The green network, which consists of nodal points (parks, squares, important public outdoor spaces, etc.) and biocorridors (street greenery, edges of watercourses, etc.), which connect these nodal points into one system. Nodal points and biocorridors perform not only an ecological, but also a social and economic function.	Ecological linkage Improved biodiversity Improved environmental quality, reduced risks of rainwater floods The possibility of developing a tourism network, safe daily travel routes Quality living and working space, opportunity to attract investors and new residents
	[2; 4; 5; 11; 25; 27]		
Local / site level	Neighbourhoods	Nodal points as socially active centres of the neighbourhood and elements of place identity. Street greenery, watercourse edges, etc. as linkages that connect the neighbourhood's important greenspaces	Improved environmental quality, reduced risks of rainwater floods An opportunity to develop safe daily travel routes An opportunity to strengthen the identity and recognition of the place Citizen participation
	[2; 4; 5; 25; 27]		
	Scale of individual landscape areas	Separate zones and elements – elements of sustainable management of rainwater and floods, meadows, biologically diverse and site-appropriate greenery, elements involving community groups – pocket parks, urban gardens, community gardens, elements of environmental education	Improved environmental quality, reduced risks of rainwater floods Improved mental and physical health of the population Building a socially responsible and educated society
	[2; 25; 27]		

Examples and principles of GI creation at different planning scales and landscape types are discussed below. One example at the scale of national and regional planning is the GI Guidelines for England. The guidelines aim to develop GI to create places where people want to live and work. Infrastructure planning is recognized as an essential tool for high-quality planning of urban and rural areas. The example of England illustrates the multi-functionality of GI and the need to involve the public in the planning and implementation process. When developing and implementing projects, it is necessary to determine opportunities for the public to get involved in the projects as well, in order to promote responsibility and understanding of the specific place and its needs. Multifunctionality is a key component of the GI concept and approach, it refers to the ability of GI to perform a range of functions to provide a wide range of ecosystem services [15].

The county planning scale includes both urban and rural landscapes. Therefore, when planning GI on a regional or county scale, a broader view of elements and connections, wide river and road corridors, larger forest massifs or other large-scale blue-green elements are needed. The GI is then detailed even to the scale of a specific place, where walking paths, gardens and other small structural elements already have a detailed meaning. The infrastructure planning process should be able to spot potential sites that could be turned into part of the infrastructure, such as business parks with different eco-technological solutions or local homemakers with different types of agricultural approaches. At the county level, a good example of GI is the strategic framework for the East Midlands (England). The county strategy summarizes both the GI planning guidelines document for England reviewed above and adds new, more detailed sets of recommendations. The strategy distinguishes guidelines for the development of GI, towns and villages and rural areas of the entire county [27]. The planning document analyzes the wide range of benefits of GI - recreation, habitat provision and access to nature, development context, energy production and conservation, productive landscapes, flood mitigation and water resource management [3].

When planning the GI of cities and villages, the importance of the social environment increases – promoting public health and economic growth, while not diminishing the importance of the quality of the environment. The structure of the city has often been formed according to the conditions and elements of the natural environment of the specific place (near the river, mountain valleys, etc.), to which both the street network and the arrangement of green areas are subordinated [4]. By connecting larger areas of greenery and nature with street greenery and other green structures, the green network of the territory is formed. Therefore, the basic elements of GI are nodes or larger green structures (parks, squares, urban forests, etc.) and connecting linkages (street greenery, riverbanks, etc.), which mutually form a single green network [4; 5; 28]. If the main task of nodal points is to ensure ecological and functional quality, then connections ensure the continuity of processes (biocorridors or movement paths for various animal species, safe daily movement for people, etc.) [2; 4; 14]. On the other hand, the green network ensures the sustainability and resilience of the overall ecosystem.

As one of the most striking examples on the scale of city planning is Stockholm, where the GI was built already when the city was developing. Originally, the inaccessible green wedges were largely royal parks, land owned by royal families or for military use. These restricted access areas were then converted into recreational, forestry or agricultural areas. The green wedges start in Stockholm's city centre and extend into the countryside outside of Stockholm. The City of Stockholm is developing the "Green Map" as a land use planning tool. The map consists of three parts: habitat map, processing map and sociotope map. A sociocultural map introduces the concept of "sociotopes" into planning and is a way of managing sociocultural aspects. A sociotopus is a defined area (biotope or several biotopes) used for social functions (shore – bathing place, meadows – recreation area) [26].

In rural areas, more emphasis is placed on the already existing natural elements and structures. Agricultural land management is a way to influence the quality of GI. It is possible to ensure a better quality and quantity structure by diversifying the crops of agricultural lands and leaving wider uncultivated areas along the edges of the fields, allowing for an increase in the amount of biological diversity. At the scale of village planning, GI is a middle ground between urban and rural areas. In villages elements of GI are located in the centre of the village and are easily accessible.

The implementation of GI through community and public volunteering and active participation is addressed in the neighbourhood context. One example is the Mersey area in North West England. A major contribution to the process of planning, implementation and maintenance is responding to the existing needs of local residents. Community involvement in the Mersey example is organized by forming two groups: the official group, which is characterized by an official approach to management, taking into account various regulatory acts and regulatory documents; an informal group that uses a variety of promotional and seasonal

events to involve community and neighbourhood residents in volunteering for the creation and maintenance of GI [18].

Stakeholder engagement and the importance of the regulatory framework

GI planning requires close mutual cooperation (scientists, land owners, representatives of local governments, landscape architects, etc.). It is necessary to look for an opportunity to involve the citizens as well, to find out their opinion and wishes. Knowledge and awareness of such plans grow with each attempt to create such a concept, which gives the opportunity for further development of the method and process. [2]. In the programs that have successfully managed to involve the citizens, creative solutions are found to attract people's attention to the ongoing processes. Among the effective strategies for attracting people are posting green structure information in post offices, libraries, schools, city hall and other public institutions, working with the media, as was done in Anne Arundel County, Maryland (United States). The creation of a wetlands plan in West Eugene, Oregon used a number of citizen engagement techniques [4].

Planning of GI of territories in Latvia

In Latvia, there are few plans or activities directly related to GI, however, there is a large potential for GI that needs to be developed. The Latvian National Development Plan 2021-2027 includes the goal of maintaining natural capital as a basis for sustainable economic growth and promoting its sustainable use, while reducing natural and human risks to environmental quality. The plan also includes references to the use of GI in the urban environment to reduce flooding, erosion and solving environmental problems while improving the quality and attractiveness of outdoor space [22]. The sustainable development strategy of Latvia until 2030 mentions green corridors as an environmentally friendly and convenient part of transport within the city, and recognizes that the preservation of natural capital and ecosystem services in the future can create opportunities for Latvia, while the world's natural capital is shrinking [21]. The national biodiversity program does not clearly mention GI, but it includes the following goals: promote the preservation of traditional landscape structures, ensure sustainable use of natural resources, promote sustainable agriculture, create protected areas in coastal waters, protect forest habitats, reduce fragmentation and protect migration routes, creating a network of protected meadows of the highest biological value and integrating this network into physical planning [9]. In 1998, a plan was created – the ecological network of Latvia, which served as the basis for a network of green structures on a national scale. However, this initiative was only a draft and was never implemented.

There is no unified system by which urban planners, landscape architects or other specialists who deal with spatial planning could be guided in the development of GI in Latvia. There are only a small number of cities that have paid attention to the structure of greenery. Currently, greening concepts have been created for individual cities – Lielvārde (2006), Kuldīga (2013), Liepāja (2016), Rīga (2018) and Rēzekne (2020). In rural areas, the GI has been developed in the context of the Zemgale region [31], and its emphasis is mainly on the assessment of ecosystem services, preservation of natural and cultural values, improvement of biological diversity. Landscape ecological plans have been created for protected natural areas in rural areas, which also include GI elements, but mainly to ensure ecological functions.

The European Biodiversity Information System [7] stores data on the development of GI in various European Union countries. In order to ensure the completeness of GI in Latvia, two shortcomings are mentioned in the information system – lack of a general, strategic plan for the development of GI policy; lack of knowledge and understanding (especially at the municipal level) and public participation [16].

Analyzing both, scientific articles and examples from practice, it can be concluded that there is still a greater emphasis on the ecological functions and benefits of GI, which is also determined by the initial use of GI - to create ecological linkages in landscapes of different scales, which allows to ensure the stability of the overall ecological system. On the other hand, the social, cultural and economic qualities of GI have been discussed mainly regarding the urban environment along with the desire of cities to become greener in order to promote the activity of residents in the outdoor space, improve their health, and create high-quality public outdoor space that is attractive for tourism and investments. It is essential to pay more attention to linking the ecological aspects of GI with social, cultural and economic aspects not only in urban areas, but also in rural areas, thus promoting the use of these areas as well. Taking into account the movement in Latvia for the creation of GI in the planning of territories of various scales, the purpose of the article is to reflect the approaches and main criteria for the planning of GI at various scales and landscapes in the context of Latvia, looking at the Aizpute town and its neighbouring villages and rural areas as a case study.

Fig. 1. Aizpute town and its surrounding villages and countryside in the context of Latvia [map from https://geo.stat.gov.lv/stage2/]

Fig. 2. Bird's eye view to Aizpute town and its surrounding landscape [photo Varis Sants, 2014]

Materials and Methods

Case study object

Due to Aizpute district being a typical Latvian countryside reflection, with a historic town, several villages, countryside diversity and the location of villages surrounding the town of Aizpute, this district was selected as a case study object. The total area of the researched territory is 6399.0 km^2 [13]. In 2021, 8,083 inhabitants live in the territory [23].

The case study area is characterized by the alternation of higher and lower-level landscapes, which form a mosaic landscape with fields and forest areas. Between the landscape elevations are the Tebra and Alokste river valleys [12]. Agricultural areas occupy 49.9 % and forest areas 45.2% of the studied territory [12].

There are several valuable specially protected natural areas in the vicinity of Aizpute, including European significance, included in the unified network of protected areas of European significance Natura 2000 – nature reserve "Lake Blažģis" and nature reserve "Tebra oak forest". The studied territory is rich in various water objects – rivers, lakes, mill ponds, pond systems and systems of large water drainage ditches, in which water is stored permanently. There are 85 cultural and historical monuments of national and local significance in the area around Aizpute, one urban planning monument - the historical centre of the Aizpute town. The existing situation of the GI of the studied area is good when speaking about the quantity of elements.

Approach to develop a framework for GI planning process

By evaluating the approaches of different European countries in the planning and implementation of GI, a planning approach has been developed for the county scale, which includes the GI planning of the county, town, village and rural landscape.

In general, the planning, implementation and monitoring of GI of all scales and landscapes are based on the stages indicated in Figure 3. The article covers the first two stages, while stages 3-5 are the next steps for full GI implementation and monitoring.

According to the developed GI implementation stages, the first stage is the evaluation and survey of the existing situation. Mapped biologically valuable elements, specially protected natural territories, high-value landscape areas and protected landscapes, cultural heritage territories, as well as important recreational areas. The type of land use is indicated on the map – forest, water, built-up, agricultural. Data for the creation of the map are selected from publicly available databases and municipal territory planning documents [10; 19; 24].

The map helps to understand the structure of the landscape and to notice various problem areas (for example, excessively large areas of continuous agriculture), which can then be addressed with the help of GI planning. In order to promote a more active inclusion of social and cultural aspects in the county's GI planning scale, where until now ecological aspects were emphasized more, public accessibility of green areas is evaluated during the mapping process. The availability map allows to analyze in which areas the GI is available and sufficient, but where there is a potential need to develop green structures, but such areas are lacking. In order to analyze the accessibility of green areas, accessibility radiuses were drawn on the map around cities, villages and the largest settlements – 2.5 km, which is easily accessible on foot, 5 km, which is easily accessible on foot and by bicycle, and 10 km, which is easily accessible by car. or on a longer bike ride. Access zones were graded by assigning points according to their accessibility. Thus, it is possible to evaluate in which areas the green structures would be more significant and would be accessible to as many residents as possible. Accordingly, the values of the areas where the radiuses overlap are added, the larger the value, the more significant the area in question. In the public access scheme, the last step is to mark the already existing GI elements that fit within the radius boundaries, see Figure 5. The colouring is graded according to importance,

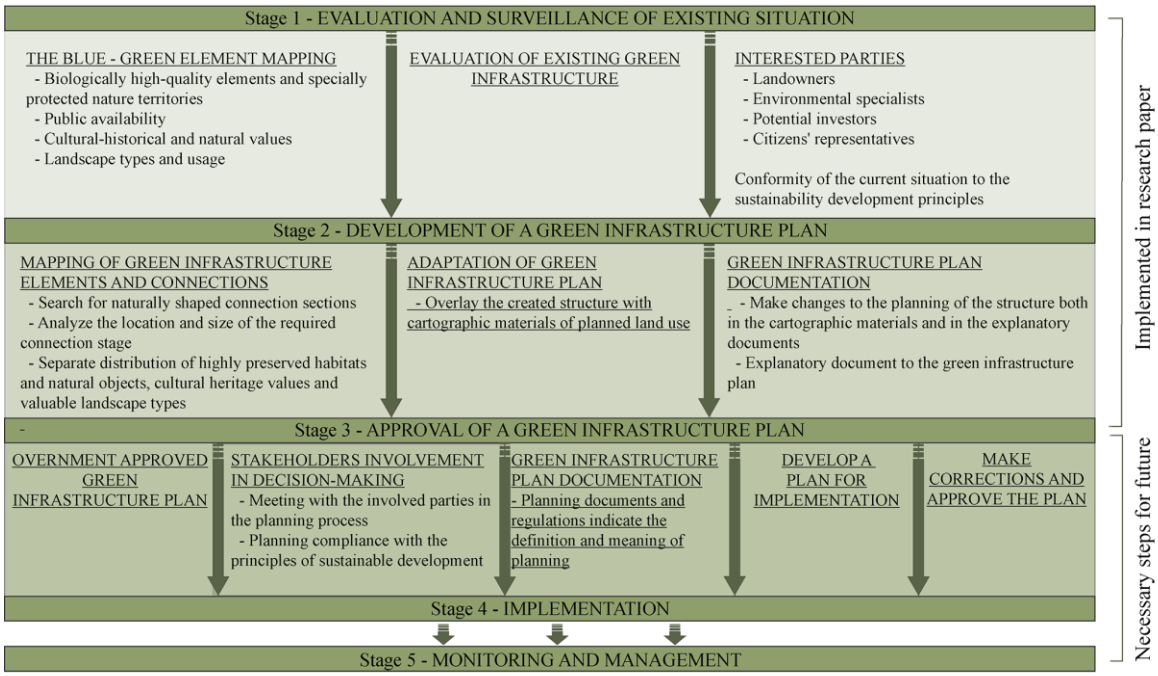

Fig. 3. GI planning, implementation and monitoring steps [created by authors]

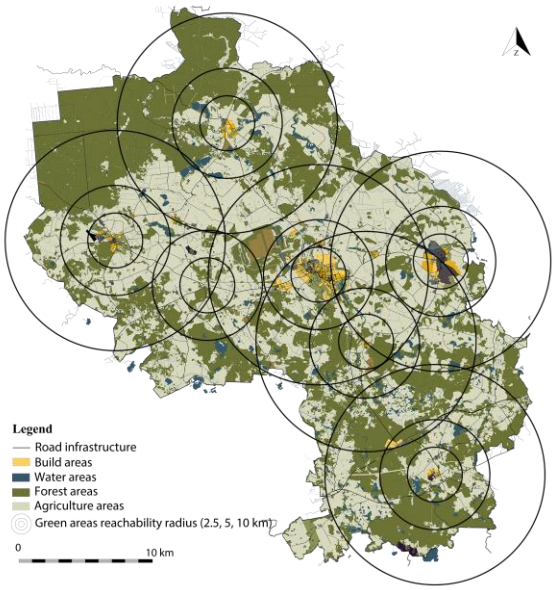

Fig. 4. Public access scheme of the existing GI [created by authors]

thus it is clearly visible in which areas the elements of GI are sufficient and where they are lacking, as well as the elements of darker colour, are more important for society, which should be taken into account in the further planning process. Yellow-coloured areas lack green structures, darker-coloured areas where public access would be high.

In the GI planning process, taking into account all previously mapped data, it is possible to determine the locations of potential and existing connections or green structures. Initially, the working group evaluates the existing situation, expressing possible improvements or recommendations. Further, various interested groups are involved in the evaluation process. Depending on the local context, interested parties may be representatives of relevant research agencies, local developers, landowners, etc. Together, already at the initial stage of planning, goals for the existing and potential GI should be set, in which direction it should develop, maybe there are special areas – highly attractive, evoking sentimental memories for residents, places of important events or business promotion (for example, in the field of rural tourism). The second stage of planning includes the mapping of connections and elements of GI, adaptation of the plan to the existing planning of the territories and preparation of documentation. The map of existing GI elements created in the first stage serves as a basis for the further planning process. Places where connections between important natural areas are missing are also clearly visible. The first task is to look for already naturally formed connection sections – river corridors, forest strips, etc. Naturally formed or preserved sections must be preserved. If necessary, corridor expansion can also be planned. It should be taken into account that administrative borders cannot exist in the planning of GI, there are none in nature, therefore attention must be paid to the influence of adjacent elements on the interior of the district and vice versa. Protected biotopes, natural objects, cultural and historical values and valuable types of landscapes should be pointed out in particular. As far as possible, the connection stages should try to include all the above elements. The initial planning process is carried out without the existing territorial planning map, in order to be based on the needs and benefits of nature and people. Only then

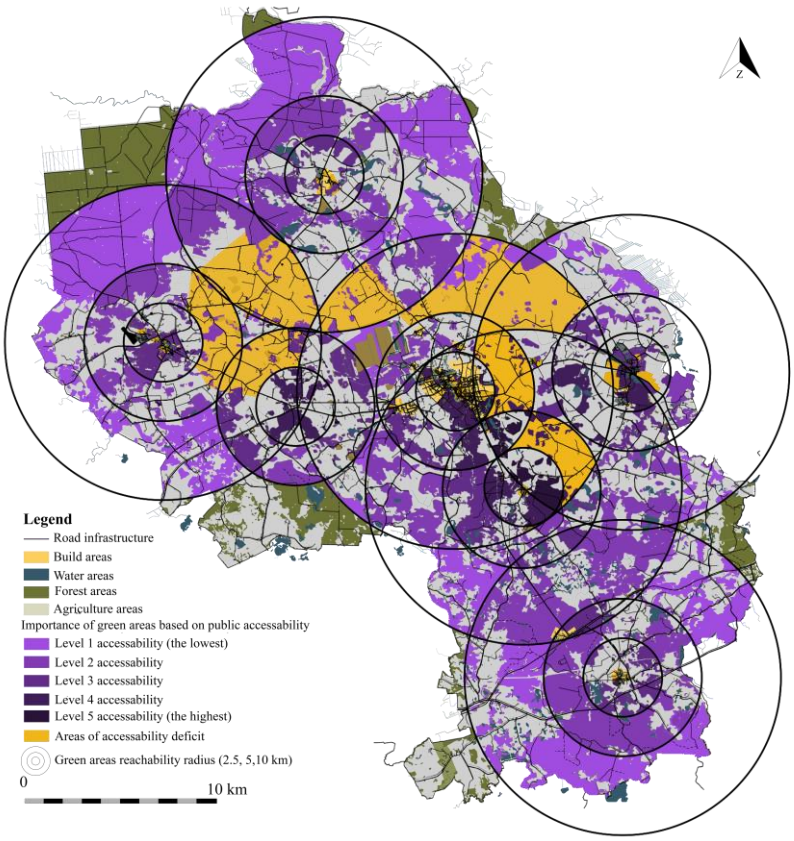

Fig. 5. GI deficit zones based on public accessibility [created by authors]

it is coordinated with existing planning documents in order to identify conflict zones. For example, where a potential natural area overlaps with an industrial area. At the end, the plan is clarified, trying to find compromises so that the development of the county is not disturbed, but the interests of nature and people in relation to the natural living environment are protected, as well as documentation for the implementation of GI is created. An explanatory document that answers the questions why such a structure is necessary, what it benefits and what actions should be taken to implement the structure in life.

In the third stage of the planning process, the GI is discussed, corrections are made and the plan is approved. During the consultation process, a decision is made on the amendments to the GI plan and the final plan is approved. The next section in the planning process is the inclusion of the green structure in the planning documents, fixing the goals, definition and meaning of the structure. In the next section, a structure implementation plan is developed, which clearly, step by step, indicates the actions to be taken.

The fourth and fifth stages are implementation, management and monitoring. It is possible to implement GI immediately or in parts. The implementation plan should evaluate the possible stages of implementation. It is necessary to manage the created and existing territories, of course, the municipality does this only on lands owned by the municipality. If the land belongs to the private owner, then already during the planning process, a support mechanism (tax incentives, etc.) must be introduced, which ensures that the private landowner will also be interested in maintaining the structure. As the last stage, there is monitoring to control the state of existing and created connections, elements and to control the processes taking place in them. Monitoring measures should be carried out regularly in order to be able to detect changes in nature in time, if they occur, and react accordingly.

Results and Discussion

As a results section, the developed GI planning approach is examined in the case study of the Aizpute town, nearby villages and rural areas.

A basic map was initially created at the county level, which includes forest, water and agricultural areas, as well as road infrastructure. Analyzing the spatial structure, it was clearly visible that there was a lack of connecting sections of GI in the district directly in the central part and around the largest settlements, which could ensure not only ecological, but also tourism and recreation linkages and more active use of rural areas for recreation and activities in nature. Such an approach is also emphasized as positive in the experience of creating a GI in England [17].

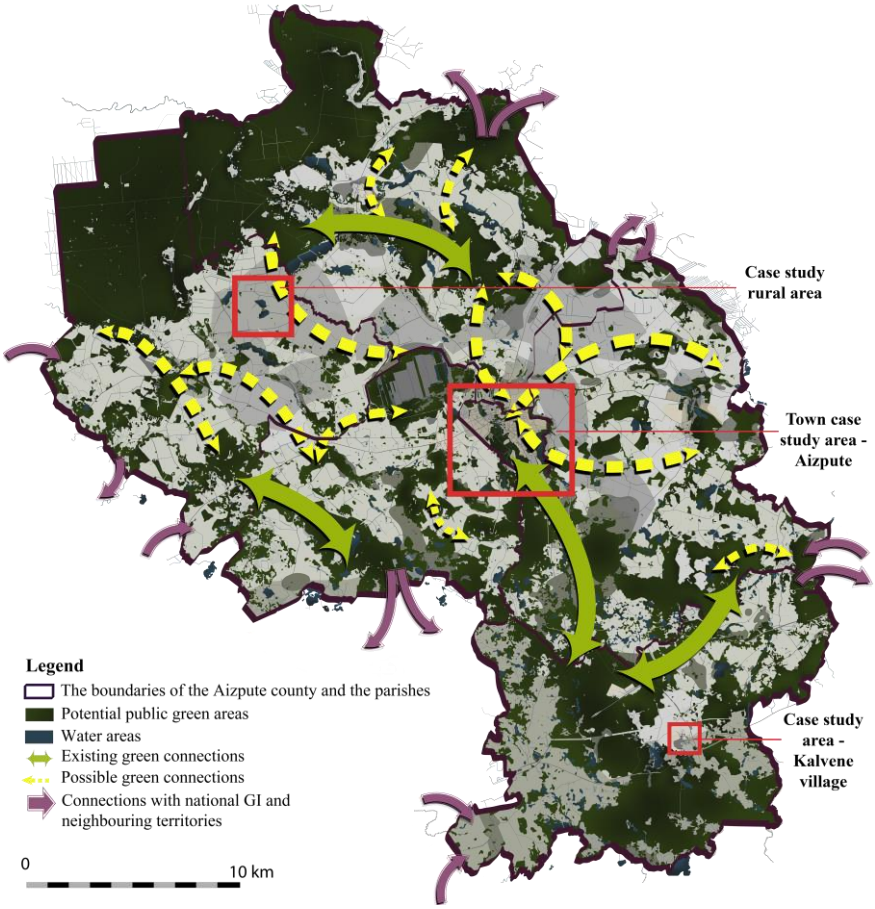

Fig. 6. Existing and potential green elements and connections of the case study area [created by authors]

The next step involved analyzing the location of biologically valuable elements and specially protected natural areas. The map depicted protected landscape areas, specially protected natural areas, cultural heritage objects, as well as recreation and tourism areas. Cultural and historical objects are mostly concentrated both in Aizpute and in villages and centres of settlements. The list of cultural and historical objects also includes various mounds and cemeteries, which are already part of the green structure. Therefore, it is possible to link the GI together with the education, recreation and tourism network.

A land use type scheme was also used, which represented the distribution of the landscape – forest, built-up, agricultural, water and mosaic landscape. The territory is dominated by forest and mosaic landscapes. However, in the northeast, there are large areas with agricultural lands, which would potentially need to be divided into smaller areas, so as not to form continuous agricultural lands, which contributes to the fragmentation of natural structures and the uniformity of the landscape. An example of the creation of a public accessibility scheme based on the example of the Aizpute district is discussed in the methods section. Accordingly, it can be concluded that there is a pronounced deficit of green structures in the northeastern, eastern and northwestern parts of the county. It can be seen that the deficit areas are exactly where there are large agricultural areas without blue-green elements or connections, see Figure 6.

Combining all previously obtained and analyzed data, in general, there are many blue-green elements and natural areas in the area around Aizpute, but for the full functioning of the GI, there is a lack of connection stages that would ensure ecological connection and improve the visual aesthetic and functional quality of the landscape.

After the evaluation of the existing situation and the involvement of the public, it is possible to start creating GI planning options, to look for the best solution for nature, society and other factors. Initially, it is possible to mark on the map already existing and easy-to-read connection sections, river corridors with a green structure, connections of forest sections, etc. Carefully evaluate whether the existing structure in the relevant place is sufficient and it is possible to ensure all the necessary processes. In the next step, the areas where the structure of the connection is inferred but not complete were marked. The areas are partially connected, but small discontinuities can be observed.

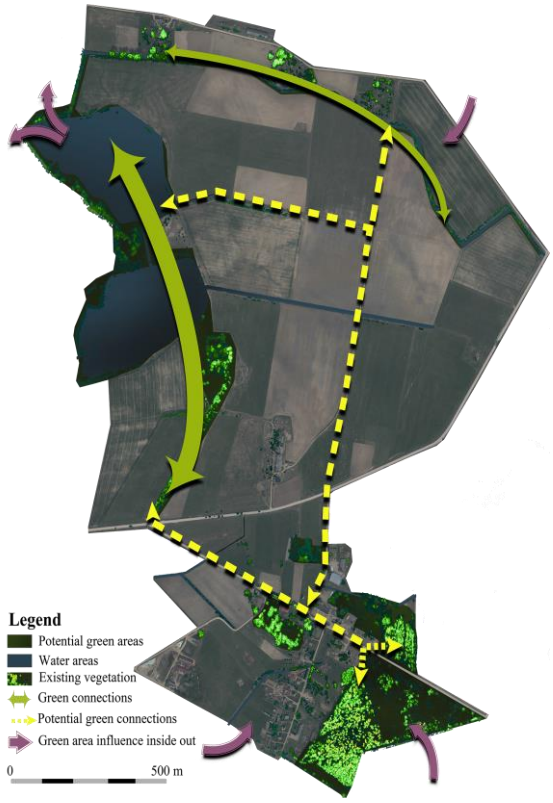

Fig. 7. Existing green elements and potential connections of rural areas [created by authors using kartes.lgia.gov.lv/]

After identifying the existing or partially existing connections, potential places for connecting were marked on the map - river corridors, points of the interconnection of cultural-historical, protected or biologically valuable territories, etc. In the GI planning process, the new corridors and connections were designed in such a way that they also include the existing small natural areas, as well as cultural heritage sites, forming a unified system. When planning the locations of potential structural connections, the areas of accessibility deficits analyzed above must be taken into account. Such a schematic approach allows for a clear assessment of whether it is possible to reduce the accessibility deficit by developing a new green structure, possibly by using already existing natural elements. In the situation of the Aizpute area, there are rivers in the accessibility deficit areas, which can be turned into GI connecting sections.

In the territory of the county and rural areas, there are four major possible types of green structure connections, which differ drastically in scale and detail from those required in a city or village. Mainly, on the county scale, the connections are formed by forest areas, separate clumps of woody plants or strips in agricultural lands, banks of watercourses, roadside greenery, for example, alleys. For forest areas, the forest edge is essential, which improves the biological and structural diversity of the landscape.

At present, in various regions of Latvia, in large areas, continuous areas of agricultural land can be observed, without connections of green structures. It should be carefully evaluated so that the connecting elements of the green structure do not overburden the agricultural activity, but at the same time are able to ensure the ecological connection. Corridors of this type (including small rivers or other watercourses) also ensure the preservation of the mosaic landscape. If there are watercourses between agricultural lands, then it is necessary to evaluate whether the type of land treatment (use of herbicides and pesticides) does not cause pollution to the ecological processes of the watercourse. If such a problem is detected, then the green protective zone around the water body should be increased.

River corridors are one of the most important connecting elements of GI. The river as a linear object connects different territories and crosses different landscapes. The ecological processes of the river often depend on the green areas next to it, so it is necessary to carefully evaluate the nature of the river and accordingly mark the places where the proximity of the green area is positive and where it is negative. The existence of green areas on the banks of the river creates a variety of new habitats and contributes to an overall increase in biodiversity.

Another important structural connection element is the road corridor and roadside greenery. The road splits different landscapes, but careful planning of GI can mitigate the splitting process. When evaluating the transition zones of green connections, the road can be part of a green corridor, or by bringing the green area closer to the road, it is possible to reduce the negative impact of the road. Safety aspects should also be evaluated because animal migration increases in places where green areas are close to the road surface, so warning signs or speed limits should be placed. Today, there are various solutions for road crossings with green bridges, tunnels, etc., but such solutions require high costs and in the conditions of Latvia, with not so intense traffic, it is possible to improve the situation only with high-quality planning of green and blue structures.

Scale of individual landscape areas. The planning of the GI of rural areas differs from the planning of the county only in terms of detail, because in the planning of rural areas, the greatest attention is focused on the creation or connection of local elements. GI planning in rural areas is most often associated with the fragmentation of green structures created by large areas of agricultural land and the need to create local ecological connections. In the selected example in Figure 7, the green structure has already formed naturally, but the direct connections are missing. There are two large ponds in the west of the area, with a tendency to swamp.

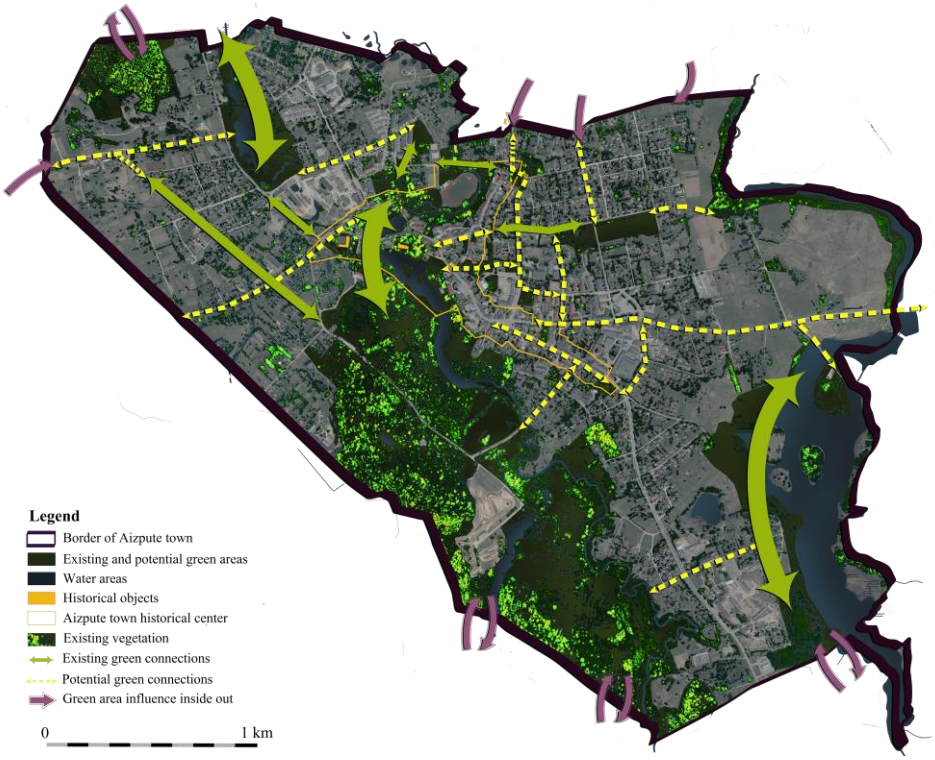

Fig. 8. Existing and potential green elements and connections in the Aizpute town [created by authors using kartes.lgia.gov.lv/]

Fig. 9. Existing and potential green elements and connections in the Kalvene village [created by authors using kartes.lgia.gov.lv/]

The outer northern boundary is closed by a small watercourse. Green areas are located in the south of the territory near a small settlement, as well as a small, narrow strip from the road to the ponds. In the central part of the territory, there is a pronounced deficit of green connections. In order to ensure the ecological connection and the connectivity of the settlement with the water course, the green corridor was created.

The planning of the GI of the Aizpute town is clearly necessary for the central part of the town. The beginnings of the Aizpute town can be traced back to the 13th century, so the central part of the town is densely built and with narrow street corridors. In the territory of the Aizpute town, the largest green element is the Misiņkalna Nature Park and the adjacent green areas, see Figure 8, the large blue elements are the Tebra river, Dzirnavu pond, the Lažas river and the Lažas reservoir.

The planning of green structures and connections is designed to interconnect the small green areas in the town centre with the vast areas of rivers, parks and forests outside the central part. The green areas in the town centre are not suitable for undisturbed recreation or they lack adequate amenities. All existing and potential green areas, which are interconnected, are marked in the plan. Since the historical centre of the Aizpute town is a state-protected monument of urban construction, the connections of the green structure were directed to or through the boundaries of the historical centre in order to integrate the cultural and historical

objects into the GI. Possible connections are also planned with elements outside the town limits, such as areas of orchards.

The territory of the Kalvene village, which is clearly divided by areas of agricultural land, was selected for the planning of the GI of the village. In the south and north of the village, there are wider green areas, which are complemented by small water features, see Figure 9.

When planning the GI, a connection was conceptually created in the immediate vicinity of the currently actively used pedestrian path, in order to provide a pleasant and visually attractive route and create an ecological connection with the village centre. All connecting elements can be detailed according to the environmental conditions (appropriate plant species, materials), as well as the nature of the specific place (place identity, visual image, history) and set needs (tourism, daily environmental quality improvements, etc.). Such planning principles are also widely discussed in the creation of the GI of Scandinavian villages, additionally emphasizing the integration of sustainable management of rainwater into the GI [29].

Conclusions

Analyzing the planning documents of different European countries, it can be concluded that each planning scale requires a different approach and planning mechanisms, as well as the detailing of solutions.

For the introduction of GI at the level of the state, regions, counties and cities of the republic, it would be necessary to make changes in the regulatory documents of Latvia. In order to create a full-fledged structure at the national level, it would be necessary to develop additional regulatory documents that regulate and determine the exact tasks for the implementation of GI - general guidelines on the importance of the structure's implementation, positive aspects and benefits for society.

Also, at the national level, a conceptual plan should be developed, a map depicting the elements forming the GI of national importance.

At the regional level, the planning documents already contain more detailed information about the elements and connections of the GI, as well as additional indications on the development of the planning process at lower levels. A more detailed mapping of the elements and connections of the green structure should be carried out in the planning, including biologically valuable territories, specially protected natural territories or aesthetically and culturally significant landscapes. Mapping and planning should be done from a regional point of view, without going into too much detail.

At the county planning level, the documentation expresses detailed proposals and recommendations as to how it is necessary to plan more detailed structures. The plan includes maps with all GI elements and connections marked in detail. The planning document also includes more detail about cities, villages and settlements. On the city scale, such planning can also be a greening concept, including both larger blue and green areas, and planning already very small parks or green areas. The planning, from the side of the regulatory framework, should define what should be included in the GI planning and what actions are intended to maintain the structure in its current state and improve it.

Researching the Aizpute town and its nearby villages and rural areas concluded that there are many blue and green elements in it, but there are connections missing. The methodology was conceptually applied to the area around Aizpute, marking the existing and possible locations of connection corridors, as well as evaluating the influence of the elements in the adjacent areas on the inside and vice versa.

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Kopsavilkums. Vēl nesen zaļā infrastruktūra (ZI) bija tikai pievienotā vērtība nekustamajam īpašumam, taču šodien tai ir pavisam cita, daudz svarīgāka loma. Raksts definē galvenos principus ZI plānošanā Latvijā, izmantojot trīs līmeņu pieeju. Katrs līmenis atbilst noteiktam teritorijas mērogam, sākot ar reģionālo mērogu, pārejot uz lauku un urbanizētām teritorijām un beidzot ar vietas mērogu. Katrs zemākais līmenis ir pakārtots augstākajam, tādējādi veidojot vienotu ZI plānošanas sistēmu. Kā izpētes teritorija rakstam izvēlēta Aizpute, tai blakus esošie ciemi un lauku apvidi.

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The importance of silhouette in the perception of the urban landscape. Saldus example

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Abstract. The silhouette of a city can be described as its image or as its face, which tends to change over time, and it is very important to incorporate it into urban planning to build a recognisable image of the city. The purpose of the study is to create development proposals and recommendations for building the silhouette of a city, while preserving and highlighting the valuable elements already present. In order to achieve this, the study examines the factors forming the silhouette of a city and their role in the human perception of urban spaces. A methodology was developed for analysing silhouettes, and was used in the towns of Tukums, Talsi, Kuldīga, and Saldus. The spatial and architectural structure of the towns, their history, factors forming their silhouette were studied, with general recommendations for the development of the silhouette from a specific kind of viewing location in the towns – their gates.

Keywords: silhouette, visibility analysis, city gates, landscape perception, urban identity

Introduction

The concept of a city silhouette is used in urban planning to describe urban landscape, closely related to the visual concept of a panorama (meaning 'all-encompassing view' in Greek), and is viewed as a portrait of the city [14]. The silhouette is the most emotionally active part of perceptual information that can be clearly observed in the plastic development of historical settlements. Compared with today, it can be seen that the urban areas that arose in the relatively recent past do not create such an expressive building silhouette [4]. The silhouette of a city is a unique visual item that becomes a representation of the abstract image and identity of the city over time, in terms of its spatial, historical, social, cultural, and economic structures [12]. The main problem comes from the fact that as cities grow rapidly, their silhouette often changes, and because of this, the identity of the city, a very important part of urban planning, tends to become less visible or completely disappears over time.

A city's silhouette embodies its unique urban character, shaped by deliberate planning, topographic conditions, economic considerations, building design parameters, and environmental conditions. The term 'city panorama' refers to the appearance of its buildings that makes up the landscape of the city by day and its outline by night. It includes groups of buildings of different heights against the backdrop of the different shapes of the terrain, creating a view of the city [25], see Figure 1. Such a space can be described as a place where nature, and the spatial elements of the composition, create a landscape-specific rhythm, flow, and a variety of colours and shapes [31]. The panoramas of a city can also be viewed as reference points for the historical perception of the appearance of its space and can be mainly classified into three categories: historical panorama, complex panorama dominated by new structures, and mixed panorama, which is a combination of these two categories [3].

Archaeological excavations and various historical studies reveal that the architectural structures and geographical locations of Latvian cities began to form as early as the 9–12th centuries, during the feudal period. After the 12th century, there were 72 fortified settlements around castle mounds in Latvia [5]. The most important feature of Latvia's landscape is its intimacy, notable in the gentle lines formed by hills with large forests on the horizon, in winding roads surrounded by fields with separate groups of trees, behind which the outlines of houses can be seen. All these elements define the rural landscape of Latvia and their location forms a well-ordered, harmonious whole [26]. An analysis of the historical development of Kurzeme reveals that the first information about it comes from as early as the 9th century – the old towns of Kurzeme were first mentioned in writing in the Rimbert Chronicle. In the second half of the 9th century, it mentions a town located near the place where Grobiņa is today. Back in the day there was an ancient Curonian city called Zēburga. Later, in the 13th century, Dobele and Rakte were already mentioned, information about which is found in the Rhymed Chronicle. In late 16th century, Balthasar Rüssow, pastor of Reval, mentioned several cities and towns of Kurzeme, but the descriptions do not offer any hints as to the nature of the buildings in the

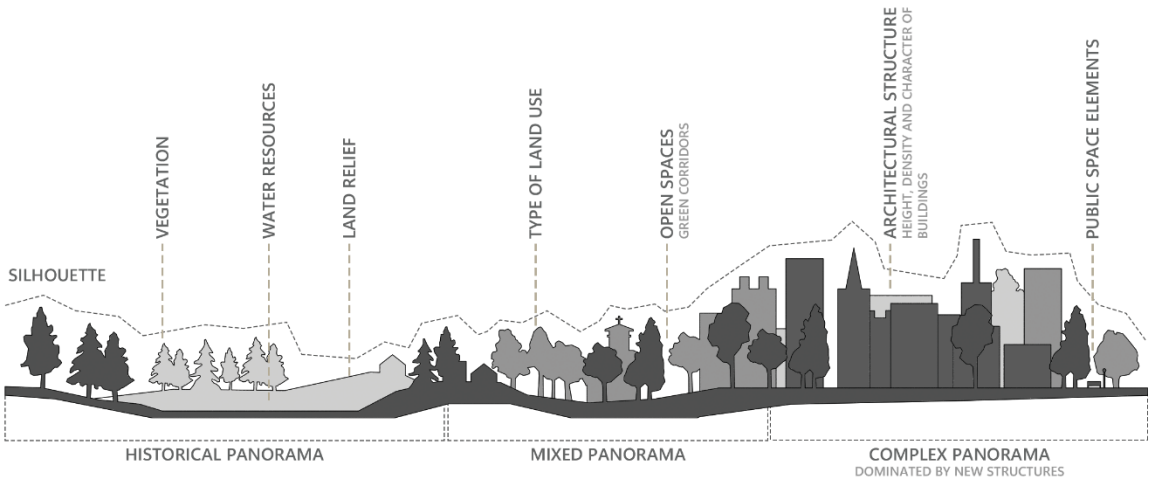

Fig. 1. Factors shaping a silhouette [created by author, 2022]

Fig. 2. Drawing by Johann Rudolf Storn: buildings in 17th-century Latvia [15]

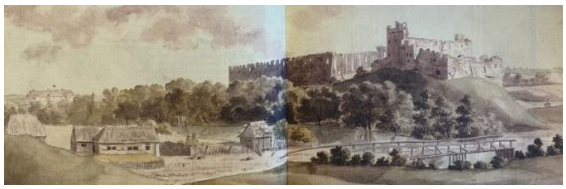

Fig. 3. Dobele castle ruins, Kurzeme, 1792 [2]

Fig. 4. View of Kalnamuiža, Kurzeme, 1794 [2

cities. Consistent evidence of the way the cities were developed appeared only in later written sources, for example, the 1740 records from the archives of the Kurzeme Governorship building authority. One of the most important sources of information about the development of the cities and the features of their buildings is old engravings. Swiss artist Johann Rudolf Storn drew landscapes of the Latvian countryside in 1661, as well as such Kurzeme towns as Dobele and Grobiņa [13]. The drawings fairly accurately reflect the character of 17th-century buildings in Latvia, and it is easy to see the regional differences in them, see Figure 2. Looking at Storn's drawings reveals that the urban development in the Latvia of the 1660's was represented by an old style of planning with wooden buildings [15]. One of the most important cultural legacies in this field was left by Johann Christoph Broce, who drew pictures showing buildings in small towns. His works mainly show the architecture of settlements in Vidzeme and the landscape around Riga; however, some of the engravings also have the cities of Kurzeme [13], see Figure 3 and Figure 4. J. C. Broce's engravings can be viewed as part of the heritage of the 18th century, during which he recorded various landscapes he saw in his travels around Latvia [29].

Natural factors play a major role in both the historical and modern development of Kurzeme's cities – rivers, lakes, landscape, and vegetation, which combined with buildings, form the urban space. These factors were clearly visible in the historical panorama of cities in Kurzeme.

The concept of a city silhouette is closely related to the identity of the location. In a concise way, the identity of a place can be defined as the interaction between the individual and the surrounding environment that the individual creates [20]. Landmarks are one of the most important city elements that reflects the city's identity and can be seen in the city's silhouette. The term 'identity of a city' is commonly used to refer to well-known or visually outstanding monuments and buildings [6]. Landmarks can, therefore, also be considered as the physical vessels for identity that we can find and recognise in a modern city [7]. In the silhouette of the city, they create an excellent visual effect and dominate the composition of the landscape, standing out with their characteristic shape, colour, and height. Thus, in a landscape, highly architecturally impressive objects can attract the viewer's attention even from a very long distance [23]. Depending on their visibility, landmarks can be divided into global and local landmarks. Global landmarks are objects that can be seen from a greater distance (for example, tall towers or mountains), but local landmarks can only be seen when you are close

to them. Local landmarks can also be very small items, such as trees, outdoor objects, and various signs [11]. In the silhouette of the city, you can primarily see global landmarks.

When looking at a city's silhouette and its perception, one should also take into account the factor of imageability, which is the ability of a landscape or a landscape object to cause a strong impression on or create a strong visual image in any observer [19]. The visual experience provides a persistent image, which accordingly creates a sense of the place or its character [28]. And today, visibility analysis is used for comprehensive research, which makes it possible to determine the existing silhouette of a city, and to create variations for new offers [25]. Visibility analysis encompasses two aspects: a digital terrain model and a land feature model (with vegetation, buildings, etc.). This analysis can also be used to objectively describe the visual characteristics of an urban space. In order to analyse the spatial characteristics of a visible urban environment, one sets a set of points visible from a specific location in space (observer) [21]. In the ArcGIS software, it is possible to work with digital elevation models (DEM), digital terrain models (DTM), digital surface models (DSM), etc. The models are based on LiDAR data, generated by flying an aircraft over Earth's surface and using a signal acquisition technique to obtain the data, referred to as the 'point cloud' [8].

In Latvia today, little attention is paid to the study of the silhouettes of cities. The Law on Preservation and Protection of the Historic Centre of Riga was adopted in 2003, which specifically highlights the panorama, the silhouette and the sight lines of Riga as unique and protected as being of authentic cultural and historic value. Research has been done on individual cities and the transformation of their silhouettes [30]. The purpose of this study is to offer general recommendations for the development of a city silhouette from a specific kind of location in the city – its gates.

Methodology

The study involved an in-depth analysis of the town of Saldus, but in order to make it possible to objectively provide recommendations for the development of a silhouette that can also be used in the development documents of other cities, an overall analysis was additionally carried out for 3 more towns in the Kurzeme region: Tukums, Talsi, and Kuldīga. The Latvian National Development Plan of 2021–2027 defines these towns as regional development centres, which means that they are the driving force for the region's growth, and their targeted development is important for a more balanced development of the country [17].

The study is based on cartographic materials, images, historical data, and field research. The field research was done in the summer of 2022. There is an analysis of the spatial and architectural planning structure of the towns and the history of their construction development, with an identification of the landmarks of the towns, dividing them into 5 categories: cultural heritage sites, religious buildings, sightseeing/tourist sites, public buildings, and natural sites. Junctures as well as functional and visual connections have also been identified for Saldus. In terms of how panoramas and silhouettes are perceived, it is necessary to anticipate and take into account the places from which these panoramas can be viewed and assessed [27]. Therefore, the most important gates of the town were examined, determining what the structure of the silhouette of the town is from these locations. The 'gates' of a city are defined as the locations where the city boundary intersects with key roads entering the city, and the size of the gate is closely related to the visibility of the silhouette. That is, in places where you can see broader views of the city's buildings, the size of the gate is larger than in places where the views are limited due to development.

The study of the gates of the city produced data, which were collated using comparative assessment matrices, see Table 1. The assessment matrix criteria are based on objective and subjective perception principles for urban space. The points system was used to refer to each possible factor: when filling in the table, the points noted the factors present in a given area. The assessment matrix point system was made so that it can be adjusted as necessary. The architectural and spatial structure of the town (which includes its buildings, roads, types of use, and the interaction between nature and buildings), its aesthetic structure (with such aspects as spatial composition, and the density and height of buildings), and ecology (which examines vegetation, elements of water, terrain, and other landscape elements) were examined as part of the objective dimension. The subjective dimension, meanwhile, is associated with the peculiarities of human perception, such as imageability (whereby the main aspects considered are the rarity and the emotions related with the landscape), accessibility (whereby it is evaluated whether improved areas are available at the specific gate of the town, enabling the observer to stop and watch the silhouette), continuity of the landscape (for which space and naturalness are assessed), and comfort (where the greatest emphasis is placed on external conditions: safety, noise, and smell).

TABLE 1

Comparative landscape aesthetic aspect assessment matrix [created by author]

Assessment dimension	Landscape aspects	Assessment criteria	Point system
Objective dimension	Architectural aspect of the spatial structure	Development structure	Cultural and historical development
			Industrial development
			Remaining Soviet development
			Recreational development
			Residential development
		Road	National road
			Paved road
			Gravel road
			Dirt road
		Type of activity	Land use according to spatial planning
	Aesthetic aspect	Interaction of nature and development	Architectural elements are harmoniously integrated into the natural environment Architectural elements form a new structure
			Historical development as the basis
		Spatial composition	Symmetry, asymmetry
			Harmony, disharmony
			Rhythm
			Visibility
			Accessibility
		Development	Height
			Density
	Ecological aspect	Greenery	
		Water elements	
		Terrain	
		Landscape structure	Form
			Colour
			Texture
Subjective dimension	Imageability	Rarity	Usual landscape, typical landscape, peculiar landscape, rare landscape, unique landscape
		Emotions	Negative, positive emotions; no emotions
	Accessibility	Well-equipped recreation areas and observation spaces	
	Continuity of landscape	Space	Enclosed, partially open, open
		Naturalness	Almost untouched landscape, partially used landscape, actively used landscape
	Comfort	Safety	Low-hazard, high-hazard
		Sound	Silent, quiet, lively, raucous
		Smell	Unpleasant smell, no distinct smell, pleasant smell

The study includes also geospatial data – nature factors can be considered as a background of the urban environment. Overall, there are number of scenic sites in the Kurzeme region which represent the cultural landscape characteristic of Latvia, however, there are also natural factors specific to Kurzeme, which includes densely covered areas with water bodies and river valleys and hillside areas. The study also includes a visibility analysis for the gates of Saldus, described in more detail in the results section.

Results

Talsi. Talsi was first mentioned in 1231. Historically, the town began to form between Lakes Talsi and Vilkmuiža (where the historic centre of the town is today), where a German military order built its stone castle in late 13th century. Two centuries later, various German artisans and merchants began to settle the Talsi area. The biggest obstacles in the development of the town were wars which damaged the development of the town, and the plague epidemics of 1657 and 1710. Despite this, Talsi kept growing in the 19th and 20th centuries, with multiple

factories and artisan workshops. Engravings by the artist W. Stavenhagen present the construction of Talsi [18].

A total of 41 important landmarks were determined in the current situation of the town (Fig. 6).

An overview and analysis of the current situation of the town of Talsi shows that the landmarks of the town mainly are in its central part. The spatial structure in the boundary areas can be evaluated as moderately high, since no landmarks are visible from the city gates, but the city structure can be partially seen, and the atmosphere of a small town can be felt in some places through the interaction of low-rise buildings and nature.

Tukums. Tukums was formed on an old road between Riga and Prussia, at the bank of the River Slocene. Old Tukums came about in the 11–12th centuries as a military stronghold and was located about a kilometre to the west of its current centre. The name of Tukums was mentioned for the first time in 1253, indicating that it was the regional centre during the Livonian Order period. However, more rapid development of Tukums began after 1422. In the 15th century, it was one of the localities of the Livonian Order state, and it already had more than twenty buildings, a castle, and a church. In the 16–18th centuries, due to various wars, the development of Tukums was very uneven, with periods of rapid expansion and multiple destructions. In the 18th century, larger urban construction began, the current image of the old town already taking shape, and in 1795, the place was granted town status. Information about what the urban space of Tukums was like in the 18th century can only be found in J. C. Broce's engravings [22].

A total of 38 important landmarks were determined in the current situation of the town (Fig. 7).

An analysis of the current situation of the town of Tukums shows that most of its landmarks are located in the central part, with some exceptions, of which one can highlight natural sites, as well as a couple of public buildings and cultural sites. The spatial structure in the boundary areas can be evaluated as insufficiently high, since the town structure cannot be read from the silhouette visible at the gates of the town.

Kuldīga. The beginnings of Kuldiga can be traced back to 1242–1244, when a military order castle was build in the Bandava region, near the ancient Curonian fortified settlement of Kuldīga. A village began to rapidly form next to the castle, and was called a town already in 1355. The historic centre of the town can be found in the area of today's Kalna and Auniņu Streets, and its building development boundary is marked by the River Aleksupīte. Initially, Kuldiga was called Kalnamiesta, and its urban planning structure was linear. After the creation of the Duchy of Courland,

Fig. 6. Summary of Talsi urban landmarks [created by author, 2022]

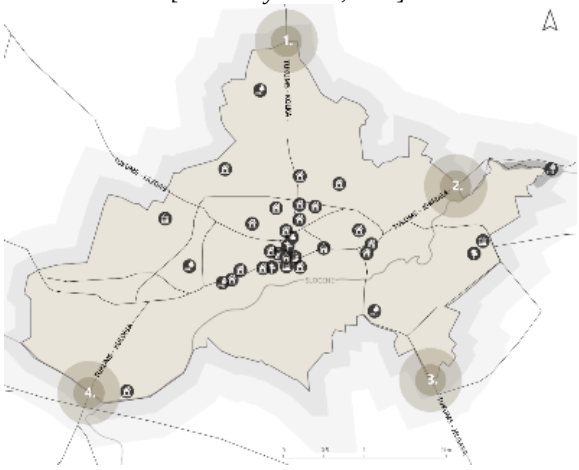

Fig. 7. Summary of Tukums urban landmarks [created by author, 2022]

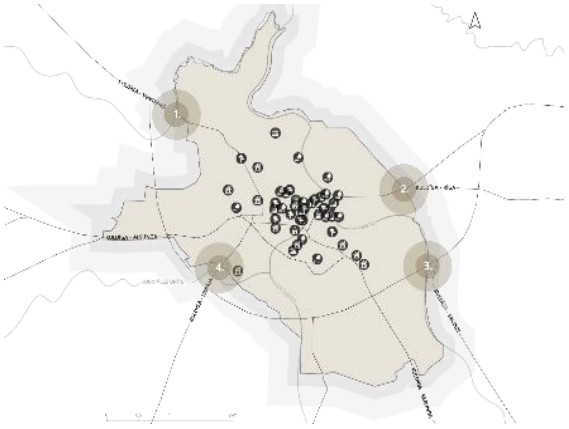

Fig. 8. Summary of Kuldīga urban landmarks [created by author, 2022]

Kuldīga became its capital, and later, during the reign of Duke Jacob, experienced a boom thanks to the rapid development of its manufacturing plants. During the Russian Empire, the character of construction in the city was marked by half-hipped roofs, vertical boards in the gable ends, and low, massive building floors, which created a look of rustic severity in contrast to other Latvian cities whose urban construction had more refined features.

Kuldīga's streets and courtyards were paved during this period [32]. In the early 19th century, the visual image of the city began to shift from small wooden buildings to larger masonry buildings with two and three floors, resulting in denser development [16]. The 19th-century cityscape of Kuldīga can be seen in the drawings of the artist W. Stavenhagen.

Kuldīga is the only town in Latvia that has taken great care to preserve its historical identity, keeping its historic centre almost intact, preventing the rash introduction of modern buildings in its urban structure. As a result, it has preserved the feeling of an urban space of the 18th and 19th centuries [32].

A total of 46 important landmarks were determined in the current situation of the town (Fig. 8).

The most prominent silhouette in Kuldīga is visible from Riga Gate, while Saldus Gate does not present the town's silhouette to the viewer at all. Although the greatest cultural, historical, and architectural features in Kuldīga are concentrated around its historic centre, and none of the town's landmarks can be seen from the locations analysed, the distribution of functional zones at the gates of the town enables diverse construction development and use of land, meaning many more opportunities to improve the silhouette that are more diverse than in the rest of the towns studied. Based on this, and the review and analysis of the current situation in Kuldīga, one can conclude that the spatial structure in its boundary areas can be viewed as high.

Saldus. According to archaeological findings, people lived and built settlements in the place where Saldus is now located as early as the second millennium BCE, and it can be assumed that the area of these settlements was between the castle mound and St John's Church. Saldus was mentioned for the first time in various articles in 1253, in a treaty with Curonians, when they were ruled by the Livonian Order. Between 1562 and 1795, Saldus, like the rest of Kurzeme, was part of the Duchy of Courland and Semigallia. During Duke Jacob's rule, crafts and industry grew rapidly in the town, with several factories established in the area. However, the place was destroyed during the Great Northern War, and in the 18th and the first half of the 19th century, there was only Saldus Manor and a parish. The rebuilding of Saldus began only in 1856, together with the Latvian national awakening. This is when the historical construction development of the city began to take shape [1].

The most striking features of the town are its distinctive terrain, which creates the impression that Saldus is located in a depression, as well as its natural areas – Saldus can be described as one of Kurzeme's cities that has kept its small-town feel, with modern features.

Looking at the graphic part of the town's spatial plan, it can be concluded that the spatial structure in the boundary areas consists mainly of natural and green areas with low-rise residential development and public buildings. In the north of the city, there are large zones with technical and industrial development, which are interspersed with small quantities of natural and green zones [24]. The data obtained and analysed during the study of the architectural and spatial composition of the town, as well as its most distinctive features, are shown in Figure 9.

A review of the current situation in the city made it possible to identify 10 gates in Saldus, 4 of which could be classified as more important, as they are connected to national roads and provide access from cities of national and regional significance.

The comparative assessment matrix data obtained during the study of the town's gates revealed that all of the 4 analysed gates of the town are very different in terms of objective and subjective indicators. The subjective perception indicator for the gate one enters when travelling from Kuldīga is that the silhouette is not sufficiently distinctive, that the landscape is ordinary and does not create special feelings in the observer, which could be due to the fact that based on objective perception indicators, the main component of the development there is industrial and there is no good visibility, and the fact that the landscape consists of flat terrain and these building types, and that there is no visible interaction between nature and the buildings. The results of the survey matrix show that the role of the gate one enters when coming from Riga, is very important in the development of the silhouette, because, according to both the objective and subjective perception indicators, it includes important criteria, such as the fact that there is a clear view over the city, the cultural and historical buildings are visible from that point, and the architectural elements of the panorama are harmoniously integrated into the natural environment. Also visible are the features of the landscape, such as the fact that the landscape is unusual and unique, which elicits positive feelings in the observer and delivers a strong visual image that makes it possible for the town to be recognised and seen by its silhouette. Similar to Riga Gate of the town, the gate one enters when travelling from Liepāja is characterised by an unusual landscape that creates positive feelings. However, its structure has visible obstructing factors, such as the lack of developed recreation areas and the fact that the area is only accessible by car, which prevents the observer from fully appreciating the city's silhouette (it can only be viewed while in motion). Both of these gates of the town provide a look at the special features of the terrain. Mažeikiai (Lithuania) "Gate" is currently the least developed one, and the silhouette of the building is difficult to read from

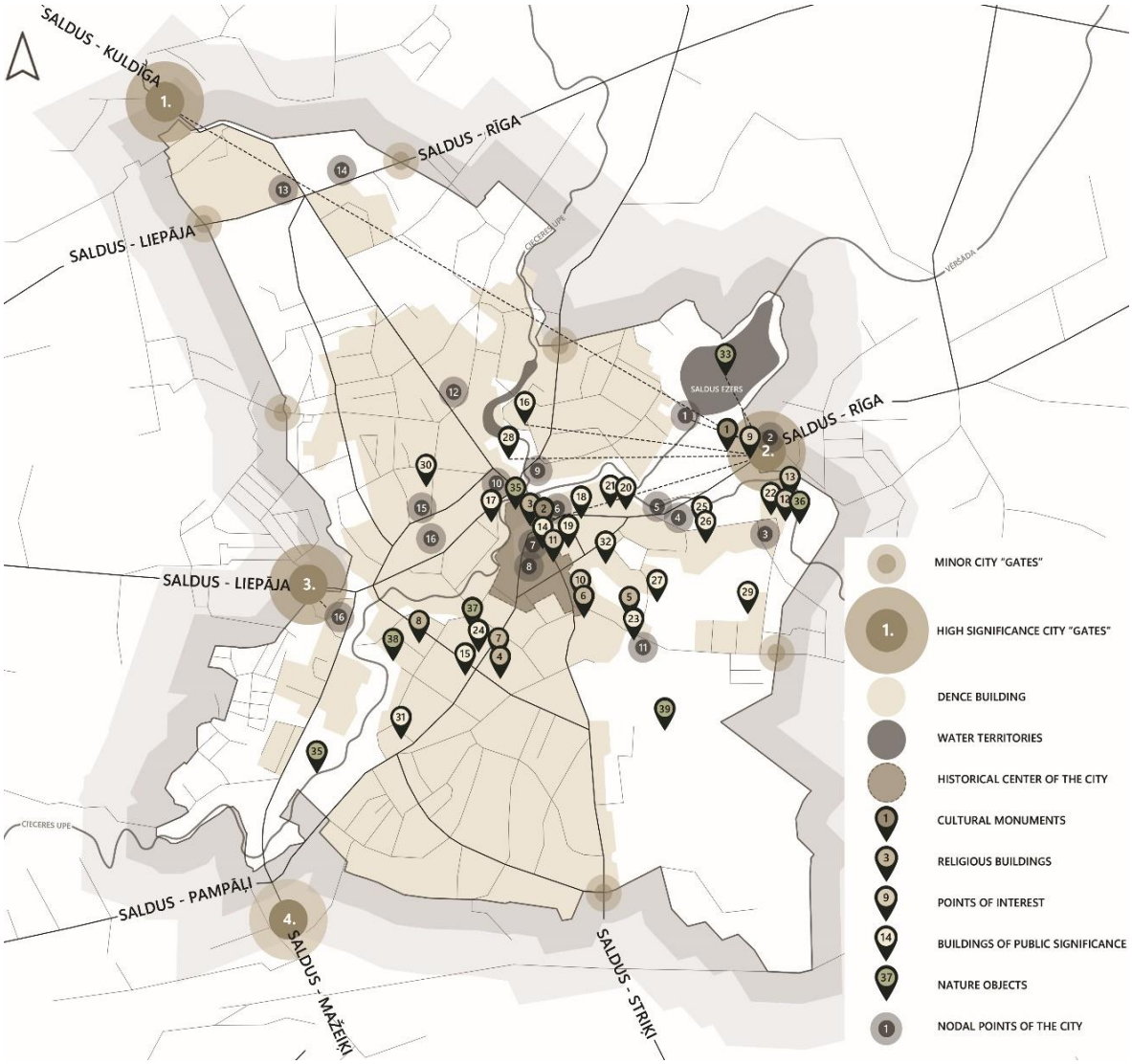

Fig. 9. Spatial architectural structure and distinctive elements of Saldus [created by author, 2022]

this point of view. This gate can be described as a landscape typical for when entering a town; it does not have any distinct features of high aesthetic quality, and it does not contribute to the image of a recognisable city.

As part of the study, in order to determine the lines of sight from the gates of the town and to understand the valuable features that can be seen in the silhouette, a visibility analysis was also performed using the ArcGIS software. For visibility analysis, the visibility (3D Analyst) tool was used in ArcGIS, which determines the surface areas that are visible to a specific observer or set of observers [10]. The analysis of the study used publicly available digital elevation model (DEM) core data (LiDAR point cloud) collected in 2016. These data are a set of aerial laser scanning points, with coordinates and elevation above sea level which are determined for each point. These data include ground surface level, short and tall vegetation, as well as buildings and structures [9]. Points were marked at the gates of the town, defining them as those of an observer (assumed height: 1.70 metres), and the visibility tool in ArcGIS was used to determine the areas visible from these points. It was concluded that the highest visibility was at Riga Gate of the town, and the lowest, at Kuldīga Gate. The visibility at Liepāja and Mažeikiai (Lithuania) Gates can be described as similar, because both offer a broader-angle view on the sides, while Liepāja Gate also provides a central view forward. Combining the visibility analysis with the existing planning in the area and the characteristic elements of the town makes it possible to find out the areas that need be revealed in order to show the town structure more successfully in the silhouette of the town. The results of the analysis are shown in Figure 10.

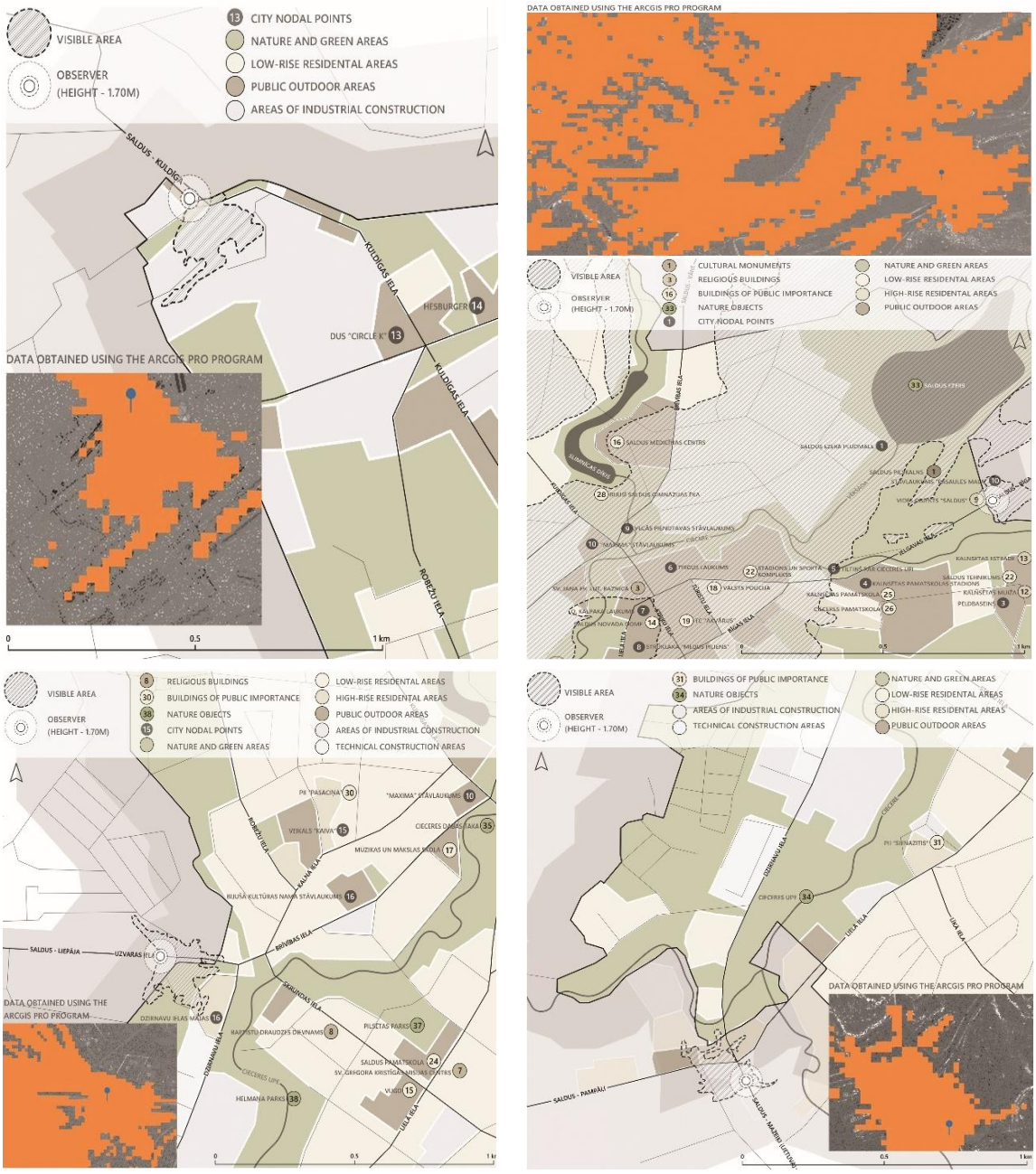

Fig. 10. Visibility analysis data at the gates of Saldus [created by author, 2022]

The study shows that the silhouette of the town is presented at high visual quality at Riga and Liepāja Gates at the gates of the city. At Kuldīga Gate, the visual quality of the silhouette is strongly influenced by industrial development with production and technical facilities, while the silhouette at Mažeikiai (Lithuania) Gate has natural elements that make it impossible to read the spatial architectural structure of the town. As a result, it can be concluded that for the gates one enters when coming from Riga and from Liepāja, it is essential to evaluate and improve the existing visual features and preserve the elements of the silhouette, but for Kuldīga and Mažeikiai Gates, to develop the view lines, creating new visual features and a harmonious and functional environment, with more pronounced elements of the silhouette. The silhouette at each gate is different by both objective and subjective indicators. It was concluded that two gates offer notably high visual quality of the silhouette – both of them provide an open panoramic view of the city, also complemented by distinctive natural factors, with terrain and water areas. The other two gates are strongly influenced by industrial buildings and insufficient development of the structure of the urban spaces. A review of this information demonstrates that for the first two gates of the town, it is important to evaluate and improve the already existing visual features of the silhouette, and for the other two, to create a harmonious and functional structure that would create new valuable elements of the silhouette.

Conclusions and Recommendations

The factors forming the structure of the silhouette are closely associated with the spatial and architectural structure of the urban space, and changes in it are subject to various factors: geographical, social, historical, visually aesthetic, and ecological. How people perceive urban space through the features of the silhouette has both objective and subjective aspects. In a silhouette, the character of the city and its landmarks leave the biggest overall impact – the observer looks at them through the prism of personal and collective experiences. Sense of place is associated with how a person perceives a particular place.

In all the towns studied, the historical structure of the urban space can be found in their central parts, but this structure does not stand out in the silhouettes at the gates of the towns. In Tukums, Talsi, and Kuldīga, no landmarks are found in any of the gates of these towns. The most pronounced influence of natural factors can be felt in the silhouette of Saldus, but it is also visible in a couple of places in Kuldīga and Talsi. The least visible interaction of nature and buildings in the silhouette is found in Tukums. In Tukums, the silhouette structure is described as not high enough. In Talsi, the silhouette structure can be described as medium high, because it has a small-town mood, but the study of the spatial structure in all the towns showed that the greatest potential for the development of the silhouette is in Kuldīga, because the city's current functional zoning offers diverse low-rise uses and opportunities for development that will improve the town's silhouette.

Based on the theoretical research, as well as the analysis of the existing situation in Tukums, Talsi, Kuldīga, and Saldus, general recommendations to preserve and improve city silhouettes suitable for the development of any city in Kurzeme were prepared. Proposals for sustainable solutions that can be used in the development of silhouettes:

On a national level:

- Introduce the matters of silhouette development in sectoral policies.
- Emphasise the importance of the topics of environmental protection for silhouette development in Latvian legislation and land development planning.

On a regional level:

- In the development documents, provide for the protection of the characteristic landscape of each city.
- In the sustainable growth strategy, define the spatial and visual development of the edges of the city, i.e. improvements near the city boundaries, as one of the principles.

At the level of individual municipalities:

General recommendations

- Carry out in-depth historical studies of cities, to find items of historical value and identity, thus determining the locations where traditional ways of developing land must be used to ensure the preservation of historical traditions, where it is necessary to preserve historical features through various symbols, and where the creation of a new identity is needed (if the development of the urban structure is not as closely associated with historical factors).
- Define unique cityscapes in city planning documents, with locations from which the silhouette of the city can be observed, ensuring their management and supervision. Ensure the protection of these areas and their accessibility to the public.
- Improve the quality of the silhouette, with more supervision over the height of buildings and design parameters.
- Involve the public in making important decisions pertaining to cultural landscape and nature and in urban management.
- Ensure the harmonious coexistence of buildings and elements of nature.
- Provide visual access to town landmarks via viewing points – develop views over the most important landmarks of the city.

Recommendations for integrating new construction in the urban landscape.

- Determine the roof 'ridge line' of the silhouette – define the heights of buildings in specific areas of the city, which are not recommended to be exceeded in the construction of new building development, in the land planning documents.
- When planning a new building, take into account the already existing functional zoning of the area – it is necessary to develop places that are currently degraded, overgrown with bushes, or not developed. Set up new urban landmarks or vertical accents in these areas, if possible.
- When expanding city boundaries, where possible, public areas, low-rise development areas, and natural and green areas must be developed in the gate areas of the city. Industrial and technical development zones should be moved as far as possible not only from the city centre, but also from the gates of the city, which can be referred to as the representative zones of the city.
- In the city development regulations, include instructions on fostering a uniform visual style (when introducing new building development in the city, requiring buildings of certain heights and styles to be constructed in the places most suitable for them, in order to preserve the visual coherence of the city).
- When creating new development, respect the natural features of the current location, and assess

valuable sight lines and objects, making sure they are not obstructed.

- Create and pursue a continuous and functional network of landmarks across the city.
- Plan new landmarks at higher points (on hills) in the area.
- Whenever possible, when creating connections between landmarks in the spatial structure of the city, set up vertical accents (buildings or outdoor objects of distinctive visually aesthetic value) at important junctures.
- Ensure the preservation of the valuable features of the natural landscape – with new building development, create compositional techniques that take into account the local geographical and natural conditions of specific places.
- The placement and layout of new buildings in the area must be in harmony with their environment and surrounding buildings, so as not to visually create a sense of disorganisation and chaos. New buildings and objects must be harmoniously integrated into the existing urban space.
- In places with visible distinctive terrain features, enhance and accentuate the natural structure with new building forms.

Suggestions for improving sight lines.

- Identify the landscape elements that degrade the existing silhouette; create solutions to improve or cover such sight lines.
- Create visually uniform styles of the city's gates (with details that represent the main values, associated emotions, or symbols of the city).
- When working on the spatial planning, assess the locations of landmarks, their connections, as well as the overall spatial structure of the city.
- Determine practical sight lines from which one can see the city's landmarks, and, as far as possible, open sight lines to nearby or distant city landmarks that are obstructed.
- In places where it is possible, create visual links between viewing locations and landmarks – if the landmark is not visible from the viewing location, create visual links through various composition techniques, emphasising at least the direction to the location of the nearest landmark.
- Develop new junctures wherever possible.
- With the help of greenery, create a spatial composition that would help direct a person's attention to the parts of the silhouette that need to be emphasised.
- Create accents along the main sight lines with seasonal plants, rows of trees, as well as elements of lighting and municipal improvements.

The methods and recommendations developed can be adapted to the development of the silhouette not only in Saldus, Tukums, Talsi, or Kuldīga, but also to the silhouettes of other cities in Kurzeme. The methodology of the study can serve as a tool to be used in the development documents of other regions; however, when preparing recommendations for the development of the silhouette of cities in other regions, an in-depth analysis should be carried out, and the specific features of these regions should be taken into account.

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Kopsavilkums. Pilsētu attīstības rezultātā, izmainās to tēls jeb "seja", tādēļ pilsētplānošanā ir ļoti svarīgi izprast un ņemt vērā pilsētas silueta iezīmes kopējā struktūrā. Pētījuma mērķis ir izstrādāt attīstības priekšlikumus un ieteikumus silueta attīstībai no konkrētiem punktiem – pilsētas "vārtiem", kas izceltu un saglabātu esošās vērtības un ļautu cilvēkiem (gan iedzīvotājiem, gan iebraucējiem) uztvert un nolasīt pilsētas identitāti. Mērķa sasniegšanai izmantota teorētisko materiālu izpēte, lauka pētījumi, fotofiksāciju uzņemšana un skiču veidošana, iegūto materiālu apkopošana un grafiska attēlošana. Pētījumā analizēta Kurzemes pilsētu vēsturiskā attīstība, vēsturiskais mantojums un vispārīgā telpiskā un arhitektoniskā struktūra. Saldus pilsētai izstrādātas arī vērtēšanas matricas un veikta redzamības analīze, ko iespējams pielietot arī citu pilsētu silueta attīstībai. Darbā izveidoti ieteikumi, kas palīdzētu veicināt un attīstīt pilsētas siluetu, kā arī nodefinēt katras pilsētas individuālās silueta iezīmes, caur kurām attīstīt unikālu atpazīstamas pilsētas tēlu.

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Opportunities for revitalising the outdoor spaces of historic town centres in Zemgale

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Abstract. The study examines the processes of transformation of urban infrastructure and the ways and tools for revitalising the outdoor public spaces of a historic centre. Changes in the historic centres of Auce, Bauska, and Jelgava and their functional layout were identified. A study of usability levels and outdoor public spaces in the historic centre was carried out, resulting in an assessment of the outdoor public space. Based on the study, spatial proposals were made for the development of the historic centres of the three cities.

The transformation processes in the urban environment affect social issues, transport infrastructure, land use, water issues, etc. Transformation is taking place at all levels today, from global economic, political, and social structures to the ways the outdoor public space is planned.

With the trends of the early 21st century, historic squares are moving towards the revitalisation of these historic locations through recreation and quiet leisure: concerts, exhibition areas, café terraces, also reviving the character of historic fairs. This spurs possible business development, increases the value of property, encourages the presence of green structures, and the introduction of regulation for protected areas in old towns to discourage possible unauthorised activities by their residents. Negative factors in historic centres include urbanisation, physical deterioration, climate change, marketing, and functional obsolescence.

Urban revitalisation is viewed as a multi-sectoral strategy that includes the development and implementation of policies in the fields of urban planning, transport, economy, urban development, and sustainability. Solutions can be developed based on different time frames: short-term, cyclical, seasonal, and long-term. The purpose of revitalising the outdoor public space is to improve the social, functional, economic, ecological, and historical aspects of an area through a variety of revitalisation tools.

Key words: outdoor public space, revitalisation, transformation, comfort, cultural space, urban environment, spatial structure, compositional axes

Introduction

Outdoor public spaces contribute to the sustainability of urban environments. These include green spaces freely or partially accessible to the public: parks, gardens, squares, waterfronts, promenades, streets, and other areas for public use [11]. Different definitions have been used to determine what an outdoor public space is. It can be defined as the totality of land and water areas in an urban environment that are not covered by buildings or paved surfaces, as well as any undeveloped land within the city boundaries [5]. Another definition is that an outdoor public space is an area freely accessible to everyone [8].

The uses of outdoor public spaces have many facets. For children, it is gardens, parks, and playgrounds; adults working in the city can spend their lunch breaks in parks, gardens, or green spaces, helping reduce their everyday stress. Cemeteries are not only an eternal home for the dead, but also a place where a sense of emotional balance can be achieved [10].

Together, outdoor public space and its blue/green structure make the strongest contribution to the urban environment when set in the context of the structure of the cultural space, its ‘canvas’. Both the compositional structure axes and the spatial landmarks are visible.

As the populations of cities are growing, the quality of life in them is becoming ever more important. The outdoor public spaces of a city must be designed to cater to and provide for the activities that people need. Often, local citizens are unaware of the activity and its use in outdoor public spaces. Citizen activities that take place in public outdoor spaces can be divided into 3 categories: deliberate or necessary, optional, and social. Each of these groups of activities puts very different demands on the physical environment. All the groups of activities are in constant interaction with each other, in different combinations [4; 10].

The *goal of the study* is to make proposals for revitalising existing passive street sections that play an important role in the context of the spatial structure. The research is related to the compositional structure of cultural and historical building development.

The *objective of the study is to look at* the historic centres of Zemgale’s cities and to assess small sections of streets that represent potential development opportunities for revitalising the outdoor space.

The *research method is* based on the assessment of the usability of the outdoor public space, taking into account the structure of the existing developed

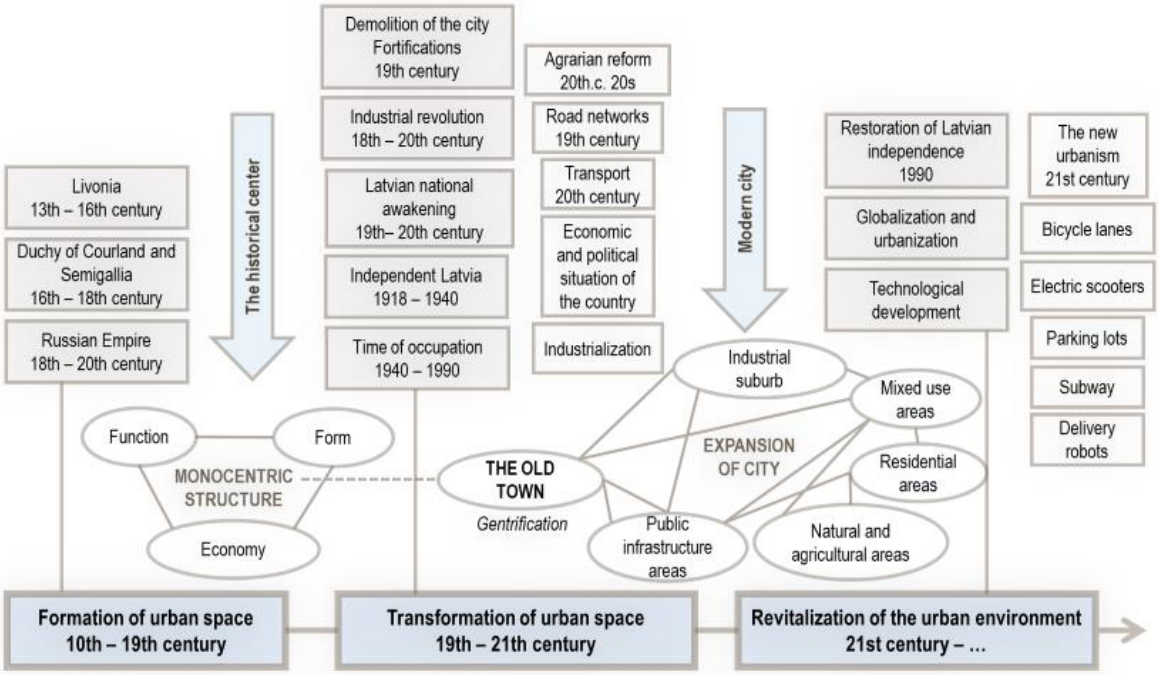

Fig. 1. Historical development of Latvian cities [diagram by authors, 2022]

area, the blue/green areas, and the street network. In order to refine the spatial compositional 'canvas', a survey grid of approximately 100x100 m, or 1 ha, was used with the cartographic material, marking the structure of the existing small streets.

The grid method is formulated following four criteria that emphasise the use of a particular urban space and are related to unifying aspects: green/blue structure, street structure, building density, and points of interest [10].

Green/blue structures include urban parks, gardens, pastures, squares, fields, protected areas, floodplains, water bodies, bank slopes, etc.

Street structure includes traffic ways and pedestrian lanes.

Density looks at the intensity of buildings in the urban environment.

Points of interest include museums, the town hall, schools, shops, petrol stations, and other public facilities.

Materials and Methods

The use of outdoor public space includes several groups of activities:

Deliberate use of public space: going to school, work, shopping and waiting for the bus; these are independent of the physical environment. Nevertheless, the quality of people's daily lives could be improved if the spaces in which deliberate activities take place are well designed and managed [4; 13].

Optional activities are described as 'if you have the wish and the time' and can include walking outdoors, standing, sitting, or sunbathing. As these activities are optional, they only take place if the weather or the location makes the activity desirable. Optional activities are, therefore, highly dependent on the quality of the outdoor public space and the environment [4; 13].

Social activities are seen as an evolution of the necessary and optional activities. They depend on the presence of at least one other person and can include children playing, conversations, community activities, and passive activities such as looking at and listening to other people.

The design and management of the physical environment can clearly influence social activities in urban space [4; 13].

Benefits and advantages of outdoor public spaces in urban areas

Outdoor public spaces play an important role in social life. This includes public areas that people use deliberately for activities that they choose freely. Advantages and benefits of outdoor public spaces in urban areas: strengthening the community based on the presence of nature, presence of historical heritage, and support for the local economy. To understand the city's current infrastructure situation, it is important to know the historical development and the role of the historic centre today.

Carefully planned outdoor public spaces that provide options for all activity groups play an important role in building quality of life, well-being, positive social communication, and the economic value of the city [1]. Benefits and advantages of outdoor public spaces in urban areas:

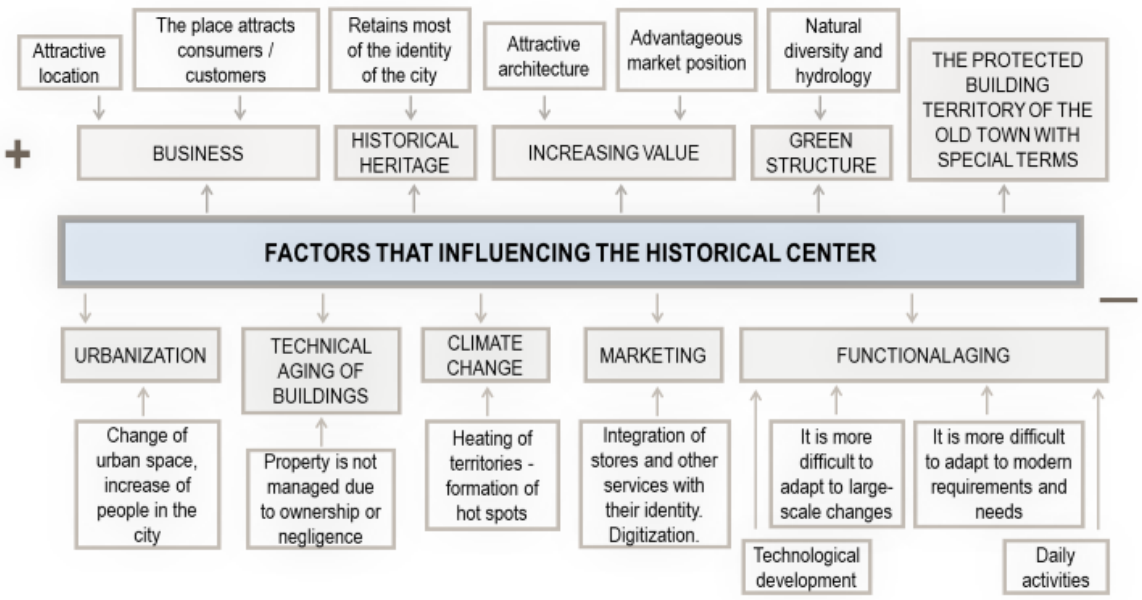

Fig. 2. Factors (positive/negative) affecting historic centres [diagram by authors, 2022]

Strengthening the community

- Safety and vigilance: public outdoor spaces encourage outdoor activities and foster a sense of safety and vigilance, reducing vandalism and crime.
- Attractive, organised community: well-kept squares and walking areas increase the attractiveness of the community and neighbourhood for its residents and guests.
- Raising self-esteem: public spaces promote healthy, active lifestyle, both physically and emotionally.

Cultural historic heritage

- Vibrant cultural and historic urban environment: outdoor public spaces bring people together for festivals and cultural celebrations.
- Preservation of history and identity: maintaining the unique features of the city and educating its residents about the city's heritage.
- Personal growth and development in children: public outdoor spaces create stimuli for children and increase their attention spans, also offering a better learning environment.
- Interaction between cultures: a shared urban environment where people from different cultures meet.

Living space

- Peace and relaxation: greenery creates a private space that provides tranquillity, absorbs street noise and bright lighting.
- Stress relief: for pedestrians and vehicle users in green spaces.
- Health benefits: outdoor public spaces enable walking, cycling.
- Lifestyle improvements: walking trails, sports centres, playgrounds improve the experience and daily life of city users.

Balancing economic issues

- Tourism: creation of job opportunities, boosting the local economy.
- Retail: a green structure attracts shoppers, boosting economic growth.
- Property value: owners and guests value the regional landscape, accessibility, and the recreational services offered.
- Reduced costs: green structures reduce temperatures in summer and the cost of rainwater management.

Presence of nature

- Reducing summer heat: greenery cools the city.
- Trapping dust and air pollution, reducing car emissions.
- Storing moisture: plants release water during evaporation.
- Reducing soil erosion: dense vegetation prevents topsoil from washing out during floods.
- Improving water quality, preventing harmful chemicals present in the soil from entering bodies of water [3].

Historically, public outdoor spaces were seen as areas for strong economic development, which, in addition to the regular nature of working days, allowed for a variety of activities on market days and on Sundays after church services. The church, market, and town hall squares of the old city centres were particularly crowded on Sundays.

Farmers brought in carts and sold everything that townspeople needed for a week. From one Sunday to another, time was arranged to create strong subsistence farming circulation between the countryside and the city. The historic city centre had a multi-layered role, economically, politically, socially, etc. Traditionally, a corner of the square was also open for social entertainment with merry-

go-rounds, festivals, etc. At the beginning of the 20th century, before the world wars. The old town squares began to take on not only a purely utilitarian character, but also a political one, with rallies, political gatherings, suppression of protesters, military parades, etc.

With the trends of the early 21st century, historic squares are moving towards the revitalisation of these historic locations through recreation and quiet leisure: concerts, exhibition areas, café terraces, also reviving the character of historic fairs with traditional dancing events. This spurs possible business development, increases the value of property, encourages the presence of green structures, and the introduction of regulation for protected areas in old towns to discourage possible unauthorised activities by their residents. Negative factors in historic centres include urbanisation, physical deterioration, climate change, marketing, and functional obsolescence [12].

Urban revitalisation is viewed as a multi-sectoral strategy that includes the development and implementation of policies in the fields of urban planning, transport, economy, urban development, and sustainability [5]. Solutions can be developed based on different time frames: short-term, cyclical, seasonal, and long-term. The purpose of revitalising the outdoor public space is to improve the social, functional, economic, ecological, and historical aspects of an area through a variety of revitalisation tools.

- Temporary solutions: an additional function created in an urban space for a short period. This could be an exhibition, a festival, a theme park, or other solutions.
- Cyclical solutions: annual recurring events in public spaces, like weekend fairs.
- Seasonal: different uses introduced across the year, such as having a skating rink in winter and a football pitch in summer.
- Long-term solutions: providing an independent function for the site, such as setting up a playground (with the possibility of transforming it) in an urban space.

According to sustainable urban development experts, 66 % of the world's total population will live in rapidly growing urban/suburban areas by 2050 [9].

The countries and cities of the world are more interconnected today than ever before, thanks to new technologies that have led to a high technological level, with the improving condition of roads and the speed of movement between populated areas [7].

Transformation processes in cultural, natural, and technological fields are resulting in a new spatial structure and scale. The connections between the city and the areas outside it can be monocentric directed towards the city centre or polycentric in mutual interaction in areas adjacent to the city, with the interactions taking place between the population centres of the outer city. Wedge-shaped, ring-shaped, radial. The pressures of urbanisation are related to job opportunities, education, leisure, events, and other phenomena. Low-fertility agricultural areas close to urban spaces are increasingly being transformed and lose their functional role under the pressure of urban sprawl.

The study examines the processes of transformation of urban infrastructure and the ways and tools for revitalising the outdoor public spaces of a historic centre. Changes in the historic centres of Auce, Bauska, and Jelgava and their functional layout were identified. A study of usability levels and outdoor public spaces in the historic centre was carried out, resulting in an assessment of the outdoor public space. Based on the study, spatial proposals were made for the development of the historic centres of the three cities.

The transformation processes in the urban environment affect social issues, transport infrastructure, land use, water issues, etc. [2]. Transformation is taking place at all levels today, from global economic, political, and social structures to the ways the outdoor public space is planned.

Results and Discussion

The assessment of the outdoor public space of a city is done for the area of the historic centre using 6 criteria based on the identified aspects of outdoor public space revitalisation: social, historical, functional, economic, green structure, and visually aesthetic quality.

Each criterion is scored on a scale of 0 to 3, indicating the presence or absence of the aspect in the area. The results are reflected in the urban development models. The results show which aspects already exist in the historic centre's outdoor public space, and which can be developed.

The historical parts of three towns in the Zemgale region selected for the study, cover an area within a 10-minute walking radius, off an impetus for development forecasting.

In each historic city centre, this small 10-minute-walk area has a visible green/blue structure, compositional axes of the streets, development density, and points of interest.

For the analysis of the green and blue structures of the **historic centre of Bauska**, the eastern part of the historic centre between the Town Hall Square (Rātslaukums) and Kalēju Street was selected, which clearly marks the 'canvas' network of the development there, consisting of streets and gardens.

The 300 m long section of the left bank of the Mēmele River in this area forms an information-dense superstructure to the historical mosaic of

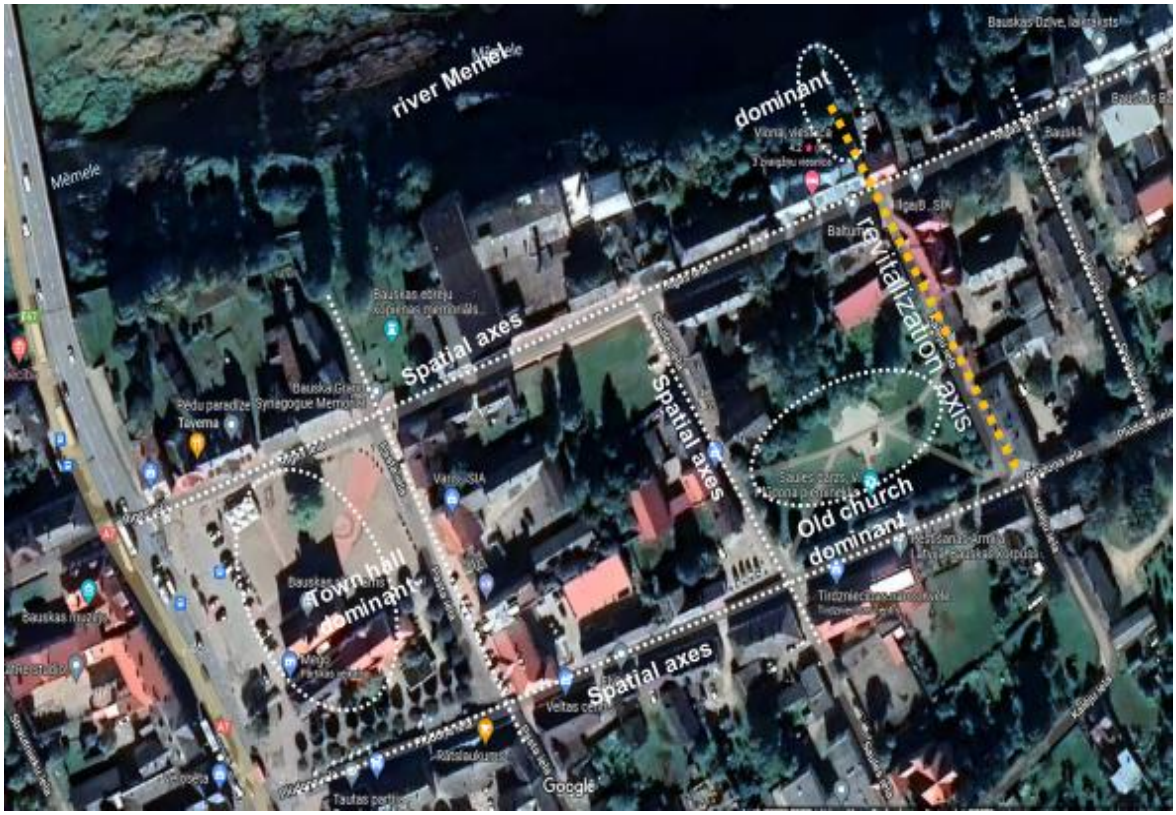

Fig. 3. Looking for a spatial compositional 'canvas' for the Town Hall Square in the historical centre of Bauska [drawing created by authors]

buildings between Rīgas, Kalēju, and Plūdoņa Streets, and the Town Hall Square. Two striking landmarks can be found in this area: the restored Town Hall (Rātsnams) and its spire, and within 100 m from it, the ruined church.

The ruined church here creates a strange feeling of something that has been lost but is still present, the emotion created by the proportion formed by the large, oversize free space in the garden, nestled between densely packed small wooden houses with tiled roofs. This scale discrepancy inserted in the historic fabric of the city building development (holes in the 'canvas') undeniably creates a sense of lost buildings, of transformation processes.

The site of the ruined church has a clear longitudinal axis as well as a transverse axis, which hints at the need to restore the development. It would undoubtedly be a costly and complex process, but the revitalisation of the historic centre is possible, with:

Kalēju Street serving as the transverse axis and connecting the garden of the ruined church to the left bank of the Mēmele;

Plūdoņa Street serving as the longitudinal axis connecting the Town Hall Square to the garden of the ruined church.

Both axes form a zone strongly attractive to tourist infrastructure within a 10-minute walk area, which includes several activity locations: the Town Hall, former site of the synagogue, terraces of the steep bank of the Mēmele, etc. These are very powerful cultural and historical landmarks, holding together a small piece of the 'canvas' of the historic centre.

The urban fabric of the area was severely eroded during the war, as the historic wooden buildings at the intersections of Saules/Rīgas and Saules/Plūdoņa Streets disappeared, creating wide gaps in the urban development fabric. Taking the place of the buildings which disappeared, there are giant trees that create an adverse impact on the old buildings with their foliage and root systems (at Rīgas iela 18). The huge branches, the weight of foliage on the roofs and drains of the houses in autumn, the settlement of chlorophyll from green leaves on the exterior walls: all this leaves a major impact on the fabric of historic buildings.

The architectural language of Plēdoņa, Rīgas, Kalēju Streets can set a strong course for revitalisation by using undeveloped land plots, turning green areas into concert gardens, summer entertainment venues, workshops by artisans of historical crafts (restorers, blacksmiths, woodworkers, potters, small shops of butchers, bakers, coopers, etc.) or small indoor spaces offering historical crafts skills. This functional scenario is dictated by the existing scale of the historic buildings and the architectural style of the 1880–90's.

Fig. 4. Looking for the compositional and spatial 'canvas' of the historical centre in Jelgava between former Town Hall Square and St Anne's Lutheran Church [drawing created by authors]

This is complemented by the rich density of green spaces of the historic part of the city, with front gardens and courtyards.

The Bauska Town Hall Square is a reflection of the city's identity, and a popular tourist and event venue. Currently, the western edge of the Town Hall Square is taken up by a car park, which demonstrates the inability to capitalise on the very economically attractive use of the heritage site as a outdoor public space. The Town Hall Square has several compositional axes and can be revitalised through several scenarios of a long-term, seasonal, cyclical, and short-term nature. The revitalisation proposals have to do with looking for landmarks clearly marked by the intersections of the axes. One of the proposals could be to install a sculpture, seeking proportion and harmony between the Town Hall, the perimeter development of the square and its scale. For example, if the Town Hall Square is to represent a 17/18th-century historical mood, the spatial scenario will undoubtedly be linked to Duke Jacob and outdoor exhibitions on historical topics using the latest technologies, which could also be done at the underground level of the square, using impact-resistant glazing in metal frames for the ceiling (glass, lighting, digitisation).

The left bank of the Mēmeles and the spectacular sight lines across the river make a very strong contribution to the revitalisation of the historic buildings in this urban area, providing an opportunity to develop promenades along the waterfront. This urban space zone sees the development of solutions that incorporate historical, visually aesthetic, environmental, economic, social, and functional aspects.

An analysis of the **cultural and historical space of Jelgava** with its green and blue structure template clearly shows that the highest potential for building activity demand in the city is along the Driksa and Lielupe rivers. One part of the historic centre, the former Town Hall Square (Rātslaukums), now the Market (Tirgus) Square, is successfully used in various celebrations. The trees planted in the square date back to the post-war years, when the city centre burned down. As it happened, only the outer perimeter of the historic centre remained, with wooden buildings and streets 300 m away from it.

The western part of the outer edge of the historic centre of Jelgava has a different scale and a different building development 'canvas' structure compared to the historic centre of Bauska. Currently, this part of the city only provides historical and visually aesthetic quality. Survey data also show that the historical, aesthetic, and economic quality of the area is seen as low. Pedestrian streets in Jelgava are neutral: they only provide a transit function and do not encourage visitors to stay in the area.

The study focused on a small area, selected using the 100 m grid method described above, along the historic axis of the building development, the western part of which is spatially dominated by St Anne's Lutheran Church, and the eastern by the location of the

Fig. 5. Looking for the compositional and spatial 'canvas' of the historical centre in Auce between the manor building ensemble and the Lutheran Vecauce church [drawing created by authors]

former Town Hall Square. The historical structure is similar to that of Bauska, but with the opposite situation of the Town Hall being gone, but the church remaining.

In the 1960/1970's, a large industrial building was constructed next to the church (a controversial building); its scale contrasts sharply with the structure of the historic buildings. The industrial area developed in the post-war years as an extension to the existing Baron von Kramer's lock factory built in the 1880's. Architecturally, the exterior of the old factory consists of ornate clay brick facades with a pilaster rhythm, giving the building a playfully light architectural language. A beautiful industrial heritage building. The post-war extension has heavy forms with prefabricated reinforced concrete exterior wall panels, which contrast sharply with both the church and the architectural style of the old factory building, ignoring the scale of both the protected zone and the cultural space.

For the proposal of the historic centre revitalisation, Kr. Barona Street was selected. It goes along the former longitudinal axis of the city canal, which connects the church with the former Town Hall Square. This spatial axis is crossed by the axes of Pulkveža Brieža and Mātera Streets, forming an enclosed block. The revitalisation proposal is made for the northern part of Mātera Street. The approximately 100 m long pedestrian zone passes through a 10 m wide tunnel-like development, whose western edge is covered by continuous factory buildings, and the eastern edge by a 5-storey residential building. So there is a corridor-shaped pedestrian transit zone (Mātera Street as a cross axis), which goes into the middle of the historic longitudinal axis. The renovation proposal, with the revitalisation of the little street, includes the provision of a number of glazed artisan workshop spaces alongside the impersonal brick wall of the factory, with pergolas, zones of low shrubbery, and terraces.

Long-term, cyclical, seasonal, and short-term solutions for revitalising the outdoor public space, encompassing historical, visually aesthetic, environmental, economic, social, and functional aspects.

The longitudinal axis with landmarks at both ends can be revitalised with tree rows or avenue greenery, inserting a green wedge into the urban space.

The recovery of the bed of the historic channel is foreseeable in the future.

The **historical centre of Auce** began as a manor house ensemble and the construction of the Lutheran church, retaining its historical name, Vecauce (Alt-Autzen in German).

The two buildings form a single spatial axis, which is completed in the northern part by the terraced elevation of the manor garden, behind which, at its highest point, is the location of the majestic Neo-Gothic-style Vecauce manor house,

creating a strong landmark at the northern end of the compositional axis.

At the southern end of the axis, there is the Lutheran Vecauce church with a garden. Since the 1960's, the compositional axis, over 200 m long, lost both its laconicism and the long sight lines from the hill of the manor house to the church. Large apartment blocks and hangars came instead, disrupting the elegance and fragility of the language of the architectural form, the 'canvas' of the structure, already mentioned in the explanation of the methodology.

In revitalising the spatial axis, one must take into account that Auce does not have a distinct city character with a dense population that could enable stable and high economic growth in the town based on a strong expansion of tourism infrastructure. Unfortunately, the administrative division reform downgraded Auce from the capital of its own municipality to a parish centre, which also has had a certain impact resulting in a decline in the popularity of the place.

The revitalisation aspect of this historic site can be pursued by focusing on the restoration of green lines or rows of trees, or the avenue which would visually and spatially suppress the impersonal character of the post-war development. The green promenade between the church and the manor house would revitalise the city's outdoor public space, which has been weakened by the disproportion and mismanagement of the occupation period.

A perpendicular axis running west to east connects to this axis of the composition, strongly accentuating both the manor house and the tree row of the access road. The two axes are complemented by a diagonal one, forming a single triangle, whose dominant is not only the church, but also the new former school building built in the 1920's. It was proudly placed there as a striking contrast to the former cultural space of the Baltic Germans, to represent the Latvian spirit of freedom. The brick architecture of the building and its pomposity that mimics the pilaster rhythm and the turrets of a manor house, are in a way in architectural competition with the historic Neo-Gothic manor house of Baron von Medem. This sight line is obstructed by a poorly positioned tree row which hides the church as a landmark.

The spatial triangle as a whole forms a strong cultural historic centre, with very prominent sight lines that have been lost over time.

The spatial triangle with three dominant landmarks, each pointing at the dimension and relevance of its time:

- north-south axis: revitalisation process planting rows of trees;
- west-east axis: the historic tree avenue;
- diagonal axis (Jelgavas Street): revealing the sight lines to the church.

Conclusions

Looking at the development plan of each of the cities, as well as their historic centres, very distinct in terms of their scale and architectural composition, clearly shows that each of them needs a revitalisation process. This is what the early 21st century demand, and Latvia, needs to take a serious step towards the beginning the revival of its historic city centres. The global examples reviewed and the literature research materials referred to in the study provide excellent evidence of this

The legacy of the Soviet-era buildings from the 1950–70s, which are now in intense competition with the cultural and historical items of value in Latvian cities, can be most quickly dampened in the context of outdoor public spaces by setting up green recreational areas, pergolas, terraces, pavilions. It is a tool that can be used to create a temporal expression format for circulation within outdoor public spaces that is:

- long-term,
- cyclical,
- seasonal,
- a short-term solution for revitalising the public outdoor space.

The temporal expression format contains information related to:

- historic,
- visually aesthetic,
- environmental,
- economic,
- social,
- functional aspects.

The transformation of the urban fabric is linked to the political and economic processes, and new technologies entering urban spaces. The outdoor public space in the urban environment involves its deliberate and optional use in everyday life; it is strengthened by the community, the presence of historical heritage, providing opportunities for the development of the local economy. The tools for revitalising the outdoor public space include social, historical, functional, economic, and environmental aspects, and short-term, cyclical, seasonal, and long-term solutions. The studied areas do not have an independent use that would invite visitors to stay in the outdoor public space of the historic centre.

The stories of Auce, Bauska, and Jelgava are closely linked in the context of the Zemgale region. The difference between them was brought about by the devastation of war and the totalitarian ideology of the post-war years. Each of the revitalisation sites can exist at four temporal levels: short-term, seasonal, cyclical, and long-term.

Today, town events are organised in historic centres. A few venues can possibly be created in Auce, Bauska, and Jelgava by revitalising certain street axes. These are places that currently cannot even be noticed, but they have immense potential that must be used both in architectural/spatial terms and in functional use.

This study and its methods can be also used in other research of the outdoor public space of the historic centres of Latvian cities. Its results can now be used at the municipal or regional level: in spatial planning, local planning, or joint projects. To increase the objectivity of the results, the assessment method can be conducted by involving the perspectives of various professionals.

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Pilsētas publiskās ārtelpas novērtēšana tiek veikta tikai vēsturiskā centra teritorijai, izmantojot 6 kritērijus, kas balstīti uz apsekotajiem publiskās ārtelpas revitalizācijas jeb iedzīvināšanas aspektiem, izmantojot pasaules pieredzi: sociālais, vēsturiskais, funkcionālais, ekonomiskais, zaļās struktūras un vizuāli estētiskā kvalitāte. Katrs kritērijs tiek novērtēts skalā no 0–3, kas norāda aspekta esamību vai trūkumu teritorijā. Iegūtie rezultāti tiek atspoguļoti pilsēttelpas attīstības modeļos. Pēc rezultātu iegūšanas ir secināms, kurš no aspektiem vēsturiskā centra publiskā ārtelpā jau ir esošs, un kurus ir iespējams attīstīt.

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Public open space placemaking suitable for adolescents

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Abstract. Children and adolescents have always been an important part of the future of society and the country. Often, the urban environment is subordinated and adapted to families with children, with playgrounds and infrastructure. However, the desire of adolescents to be out in society, in public spaces and to participate in social interaction is not sufficiently supported. Public space is a 'stage' for adolescents to test themselves, their limits and learn social skills, as well as to explore the norms of society and community. The aim of this article is to provide an insight into the principles of designing environments that are suitable for adolescents, with recommendations for the design process of such public outdoor spaces. Analysing publicly available information on the needs of adolescents and the suitability of outdoor spaces for their outdoor activities, it emerges that often the adaptation of urban environments for children or adults contributes to the isolation of adolescents from society, which in turn results in gatherings in unsuitable areas, vandalism and substance abuse. Introducing with suitable case studies in the design of outdoor spaces for adolescent children, we conclude that in order to mitigate the above risks, it is necessary to understand the developmental processes, emotional and psychological characteristics of adolescents, as well as to raise awareness of the basic principles of democratic upbringing in society, and to develop guidelines for the involvement of adolescents in urban planning, which would help municipalities to involve this specific target group in urban planning, ensuring that adequate public spaces are created for adolescents.

Keywords: Public open space, placemaking, adolescents, teen girls

Introduction

We used to see the good examples of development of the inspirable places made for the children usually at age 3 to 8 or 9 but there is no much good examples or cases where we can see infrastructure made specially for kids starting from 10 or 11. Although they have their own needs for outdoor places to spend time together meaningfully in such places.

In the context of public open space, these areas can be divided into public or private open space. Public open space includes playgrounds, parks, roads, etc., while private open space includes the public open space of private properties with associated infrastructure [1; 2].

Public space is one of the key factors shaping the urban environment and urban development. It is vital for every user of the urban environment to organise the provision of necessary functions. Globally, open, publicly accessible spaces play a key role in conserving natural resources, reducing rising air pollution and creating green corridors [1; 3; 4].

Public space has different meanings for different social groups, places and time periods, and its meaning is linked to the contrast between public and private space. These areas are characterised by different perspectives and functions. Today, a large part of the areas that make up the urban environment are privatised, e.g. owned by the state, organisations, private individuals or financial institutions. However, these areas can also be used as public outdoor spaces without ownership, for example for relaxing or studying in a café, or for squares as meeting places [1; 5]. Particular attention should also be paid to the development and quality use of heritage sites today, which may also have different ownerships, through a variety of measures to attract people, while at the same time promoting them [6].

Each country sets its own definition of what constitutes urban public open space, but the key features for recognising public open space are the same: it is an area within an urbanised environment that is freely accessible to anyone living in or visiting the city [1; 7].

Public spaces and meeting places suitable for teenagers are those that create the illusion of dangerous challenges. In cities where there are inadequate barriers and play facilities, teenagers gather in playgrounds, but use them in demolishing and dangerous ways, such as climbing on the roofs of play installations and structures that degrade public spaces suitable for children and evoke negative and judgmental emotions among adults. Teenagers are stigmatised and excluded from the overall infrastructure of public space, which is why it is important to create areas where teenagers can feel that they are the main consumers [8].

Methods

Literature review and case study analysis have classified four fields of study: (1) Public open space planning and management, (2) Place making concepts, (3) Adolescents mental and physical health, (4) Teen girls' activities in public space. The analysis of the papers reviewed was categorized into two types: (1) Adolescents behaviour and needs patterns in public space and (2) diversity of public outdoor spaces. A wide range of proceeding papers,

journals articles, theses, reports, book chapters from electronic databases (including Science Direct, SCOPUS and Web of Science) was covered in the review. More than 50 papers about adolescents needs and planning issues of public space were analysed and accepted into the final stage of the review.

Results

Although outdoor public space is accessible to everyone, each social group tends to visit a particular type of outdoor space (see Figure 1):

This division is based on the interests of the community or individual, their financial situation and the characteristics of the outdoor space. Public open space is suitable for everyone, but it is necessary to respect the interests of each social group and to provide suitable recreational spaces for them. This is a factor that is directly linked to the place-making approach, which encourages the development of a range of activities in public gathering places, providing opportunities for people of all ages and social groups to enjoy a fulfilling pastime [9]. Overall, this approach contributes to the success of each place and city, as people socialise better in such places and develop a sense of belonging. The variety of activities offered by the place is highly appreciated by all age groups. In addition, the adolescent age group mainly visits the public outdoor space, where they are encouraged to engage in various activities and feel belonging and unattended [1].

Human behaviour in spatial environments is a process that most people engage in unconsciously and take for granted. The aspects that generally influence human interaction, behaviour, opportunities and constraints in nature are the reflection of physical elements in habits. The interrelationship between the physical environment and human habits is one of the focuses of architecture and urban design [5].

Public realm management is often characterised as activities that both maintain and develop the public realm over time, focusing on the usefulness of the area for its users. Social management is essential to ensure the circulation and attraction of users to an area. The different perspectives, age groups and interests of users should be taken into account [10].

To be suitable for different users and perspectives, and to be inclusive for different age groups, public spaces need to offer a range of features designed with a user-centred management approach [10].

Users of public open space have the right to [11]:

- move freely;
- rest undisturbed;

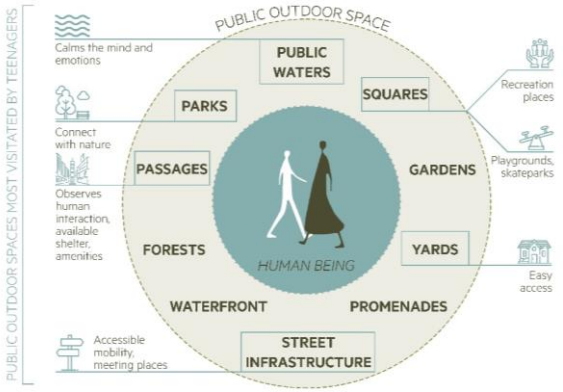

Fig. 1. The most visited types of public outdoor space by teenagers [created by authors]

- use public outdoor space without control (as long as it complies with the conditions of use of public outdoor space);
- take photographs;
- to trade (subject to obtaining the appropriate licence);
- peaceful protests and demonstrations;
- improvising, making art or street music.

Users of public open space are obliged to [11]:

- respect the rights of other users;
- respect the private property of the public open space and other users;
- behave in a civilised manner;
- not engage in vandalism.

The manager and maintainer of the public open space is obliged to [11]:

- respect and protect users' rights and privacy;
- treat all users of the outdoor space equally;
- maintain the outdoor space and ensure safety;
- ensure free and unrestricted access.

All these rights and obligations are essential factors in shaping the urban environment, ensuring public order and creating a respectful environment for civilised coexistence.

Meeting places are created in urban areas with optimal outdoor conditions to meet all the above criteria. The duration of conversations and socialising is influenced not only by the surrounding environment, ease of accessibility, but also by mobility options, the strategic location of the outdoor space in the public outdoor network, and the form of the spatial dimension [12].

The furnishing of an outdoor space and its harmony with the landscape have a significant impact on the willingness of people to stay and socialise there. It is important that the furnishings facilitate eye contact between interlocutors, while respecting the boundaries of private space [9]. Successful urban conversation environments are created by mobile furniture and mobile infrastructure solutions that allow meeting places to be designed and organised as needed [12; 13].

The impact of the Covid-19 pandemic on the outdoor public space

The modern concept of public open space originated in the 19th century, when city dwellers walked the streets. Those who strolled the wide streets were interested in shop windows, and it was the emerging consumer culture that encouraged the development of public space. During this period, vendors became aware of the competition and came outside buildings to see and be seen by potential buyers. These two key aspects, consumer culture and socialisation, have been affected by the restrictions imposed by the pandemic. Covid-19 challenges aspects that shaped the early development of public outdoor space [14].

Existing methods for studying public space count the number of people who visit public spaces such as streets, parks and squares in order to understand and assess patterns and habits of use of public space. Often the active and regular presence of people in public spaces is interpreted as an indicator that public spaces are functional and "alive". The pandemic has brought about a change in habits among public space users and in the use of public space, suggesting that the data collected so far on public space may not be relevant to the current situation and use of functions [14].

During a pandemic, changes in the gathering patterns of users can be observed, not only in parks and squares, but also on the streets and on transit routes. However, it is currently not possible to answer the questions of whether the patterns of use of public outdoor spaces during a pandemic will be sustainable, and whether public outdoor spaces need a transformation process [14]. There is a growing urban focus on the creation of high quality green spaces to encourage people to stay outdoors, and new solutions are being sought to make outdoor spaces more crowd-friendly, especially in urban forest areas. An important lesson, not only in the post-pandemic period, is to diversify the functions of outdoor spaces by planning activities that may be seasonal or have a different type of regularity [15].

Data available in the public media space show that during the pandemic, public outdoor spaces continued to be actively used by less economically stable groups with a lower standard of living and quality of life, while workers with higher incomes continued to work from home and used public outdoor spaces much less frequently [14]. New urban districts are dominated by mixed-use areas, which give people the opportunity to live, work and play without having to spend time moving around these different places. It is particularly important to provide a variety of activities for all ages and social groups, while at the same time considering accessibility and connectivity to the surrounding areas [9].

The consolidation of the teleworking model in society will have a significant impact on the consumption behaviour of public outdoor spaces, but children and adolescents will be influenced by the example they learn from their parents. Public space will face the challenge of bringing together the different layers of society to counter the pandemic of the better-off in the park and the less well-off in the streets and sub-public spaces [14; 16].

The trend of declining use of public outdoor space may contribute to the overall decline in public health initiatives. Subjective well-being of children and adolescents, which is strongly associated with exposure to public outdoor spaces, has declined sharply during the pandemic. Research shows that adolescents who were active and social before the pandemic had an easier time in the early stages of the pandemic, both emotionally and in terms of reduced physical activity. Adolescents report that spending time outdoors and in nature has reduced the stress and emotional strain caused by the rapid changes in Covid-19 [14; 16].

Children and adolescents cannot play and develop in isolation, but need a physical, socially active and cultural environment. Children and adolescents have the right to play and rest, which has been stated in the United Nations Convention on the Rights of the Child for more than 30 years [17]. Children and adolescents' use of public outdoor spaces is directly affected by the opportunity to be with their peers, which was drastically changed by the pandemic [18].

However, the impact of the pandemic has contributed to the transformation and adaptation of indoor activities to public outdoor use. More and more people who did not telecommute started to use bicycles instead of public transport, raising questions about the quality and suitability of cycling infrastructure and public street space, not only for children and adolescents, but for all user groups in the urban environment [19].

Publicly, there is a trend for teenagers and young people to use parks and gardens more than other age groups, while adults use motorised transport to get to more remote locations and to take advantage of recreational and passive leisure opportunities. These trends highlight the characteristics of public outdoor space and make it necessary to assess whether public outdoor space, which has been used by all social groups, is suited to new trends in terms of its suitability for children, adolescents and young people. Teenagers say that they are more active in using public outdoor spaces during this period and want to discover new meeting places, interests and opportunities for diversification [19].

Adolescents, although a minor age group, have rights that are in line with those of the general

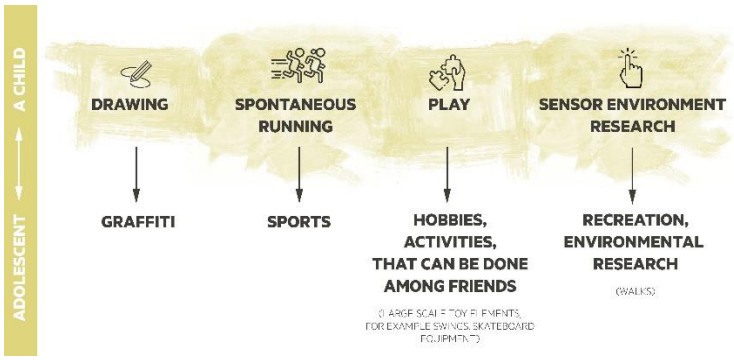

Fig. 2. Transformation of interests in the "child - adolescent" transition

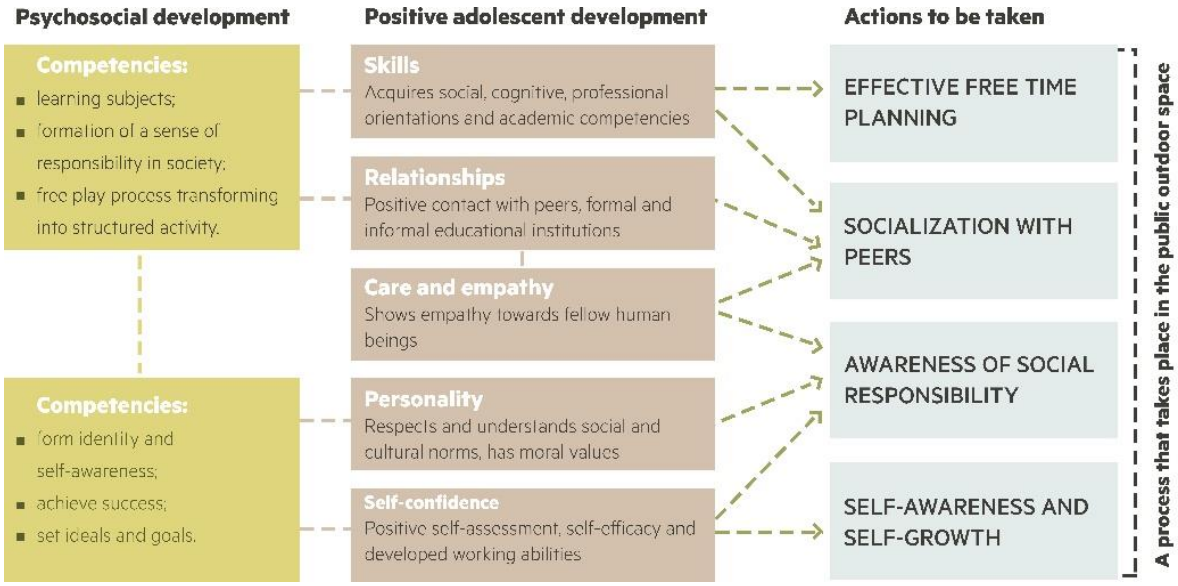

Fig. 3. Development challenges in adolescence [created by authors]

population. Although they are defined and regulated differently in different countries, the premise that young people under the age of majority should be given the same opportunities as senior citizens is defined in the United Nations Convention on the Rights of the Child. The Convention establishes civil, social, cultural and other rights for persons under 18. State and local authorities have a duty to act in the best interests of young people. While the Convention clearly defines the responsibility to provide for fundamental basic needs, such as shelter and safety, the responsibility and need for affordable access to public spaces is not clearly defined. Accessible public space is an important component for this social group and therefore local authorities have a duty to act in the interests of young people and to meet the objectives of the UN Convention [17; 20].

The World Health Organisation recommends that adolescents do at least 60 minutes of moderate to vigorous physical activity. This level of physical activity improves adolescents' health, but there is a tendency for more than half of existing adolescents not to follow these guidelines. There is a sharp decline in physical activity levels at a given age. Inadequate levels of physical activity are considered to be one of the leading risk factors for global mortality, affecting public health [8; 21].

The environment in which people live is a place for many different kinds of activities, generally facilitating or hindering participation in different societal processes. The urban environment reflects the needs of the community, such as places for commercial activities, recreational facilities and cycle lanes, but in addition to the needs of the community it is necessary to incorporate specific requirements that are less often reflected in today's urban environment [20]. These needs are linked to the social and psychological aspects that contribute to the development of individual social groups. Adolescents have specific developmental stages and skills to acquire. Playgrounds are provided for the development of children's physical and social skills, but it is important to understand that the developmental stages of adolescents are no less important than those of pre-school children.

The process of transformation of values and activities has led to the conclusion that the development of a quality urban environment requires not only a set of community-specific and necessary infrastructure elements, but also public

outdoor spaces that are suitable for different social groups and age groups. As children develop into adolescents, the desire for challenge and play is not lost. This is transformed into other activities than playground installations. In some cases, the transformed needs are not supported and are questioned or condemned, and defined as vandalism, protest, or seen as the result of bad parenting (see Figure 2) [20].

Teenagers' interests regularly change and transform according to the times, technologies and environments in which the development process takes place, so it is impossible to define clear-cut activities that are needed in an urban environment (see Figure 3).

On the other hand, there are observations of a constant 21st century influence contributing to significant changes in the way a given age group engages with society:

Adolescents have a conscious willingness to take risks without considering responsibility and consequences;

The use of electronic devices significantly influences and transforms children's perceptions.

In the light of the above, it is important to combine this with an understanding of the developmental and learning processes that adolescents experience in order to assess their interaction with their environment. The challenges and tasks associated with the social and psychological development of young people, while providing the appropriate environment for this in publicly accessible infrastructure, also contribute to physical development [20].

From a developmental perspective, the environment plays a key role in adolescents' development and social identity. At this stage, public space functions as a transitional environment, moving adolescents away from playgrounds and closer to the freedom of independent choices and decisions. This tendency is important for the development of personal, social and civic identity. Teens use public outdoor space as a stage to test ideas and to gain knowledge about the community and accepted norms [22].

In their teens, children start to acquire independent spatial mobility, which is an integral part of urban infrastructure. Teenagers regularly move between public outdoor spaces and use shop car parks, stations, environmental sites and parks as meeting points [22].

Adequate physical activity during the day is an important issue especially for the children and adolescents to reach optimal growth and development. Regular physical activity either moderate or vigorous is usually associated with several benefits for health, including reduced risk of obesity, depression, heart disease, stroke, or cancer [23].

Outdoor activities promote academic achievement, as well as improved cognitive performance and higher self-esteem during adolescence. Interaction with outdoor spaces, particularly natural and naturalised landscapes, is associated with positive outcomes in physical, mental, social, emotional and cognitive indicators of health and well-being. Areas with naturally created barriers, such as dynamic playscapes, encourage children and adolescents to engage in active, exciting and risky play. Such activities allow adolescents to independently test their abilities and limits, thus contributing to the development of social resilience [23].

Teenagers are one of the social groups for whom spending time outdoors results in the acquisition of different skills and competences. Studies show that teenagers feel excluded from society because they are considered too old to relax in playgrounds, while they cannot afford to relax in supermarkets or cafés [24].

The public outdoor space needed by teenagers can be divided into three parts:

- natural or naturalised urban environment;
- public open space for active recreation;
- an environment for interaction [24].

Research shows that young people use natural or naturalised landscapes to experience positive emotions and a sense of peace. This type of public outdoor space has several levels of interaction, starting with indirect engagement, such as looking at trees through a window, continuing with unconscious engagement - creating routes that incorporate elements of the landscape environment, and finally with purposeful engagement through visits to this type of public outdoor space.

Physical activity tends to decline during adolescence, but it is still an important, developmental activity. Skate parks, football and basketball pitches and cycle paths are often included in the design of landscapes suitable for children and adolescents. These places are suitable for developing physical fitness, but are mostly used by boys and adolescent boys. Adolescent girls, on the other hand, are not emotionally inclined to compete with each other, so it is important to include elements in public spaces that engage adolescent girls and allow boys to promote emotional and psychological health development [24; 25; 26].

Preferable public outdoor space for teenage girls contain such landscape elements which provide opportunities for creative activities, areas for roller-skating, where there is no fear of mobbing and no fear of making mistakes, or as squares, plazas or installations in which to sit and create dialogues. Installations and landscaping elements with different lights and colours, which are not static but create movement by imitating play elements, such as lounge chairs, hammocks and swings, are recognised as engaging elements [25; 27].

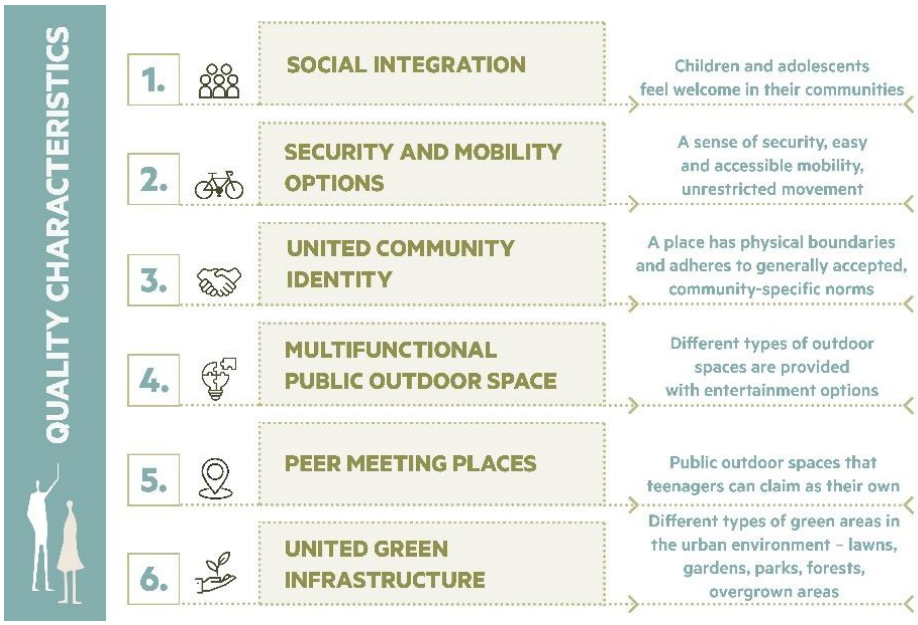

Fig. 4. Features of a public outdoor space suitable for teenagers [created by authors]

The desire of teenagers to develop different kinds of relationships and interactions with other people should be considered in the design of new public spaces. Teenagers are keen to stay in places that are well frequented, but the recreational spaces they create give a sense of semi-public outdoor space, as well as in places that are not closely supervised by parents. The qualitative characteristics of children and adolescents in public outdoor spaces are similar but not identical (see Figure 4) [28].

Integrating new and existing recreation areas into the city's overall infrastructure is important not only for the overall development of the urban environment, but also for mobility. For teenagers to enjoy spending time outdoors, there needs to be adequate mobility infrastructure as well as amenities that allow outdoor leisure time regardless of the weather [28].

The design of meeting places should be flexible, so that both individual visitors and groups of friends feel equally comfortable. Appropriate outdoor space design provides a scale and personal space that is appropriate for groups of users of public outdoor space. Outdoor spaces suitable for teenagers require the use of mobile and multifunctional solutions, so that the design elements are inviting and provide as many activities as possible. Landscaped spaces for teenagers should be easy to reach and accessible. Children and adolescents at this stage of development are resistant to monotonous environments that lead to feelings of boredom. This age group is characterised by the immediate realisation of ideas, so adolescents move from one landscape space to another rapidly, which emphasises the need for public outdoor space. The nature of rapid and impulsive actions raises mobility problems in the urban environment [22].

Teenagers sit on benches differently from adults. Teenagers tend to choose sitting positions with their legs bent and curled up on the bench rather than on the ground, with the back-support part of the bench as a seating surface, and with their legs crossed or bent. This type of seating is due to its protective function and informal socialising habits, and the creation of an open, free atmosphere, and therefore the design, mobility and placement of benches in such areas needs to be given more attention. Appropriate design provides for casual encounters and easy and relaxed departures, which is why adolescents prefer to be in and congregate in public outdoor spaces adjacent to streets. In these outdoor spaces, joining or separating from the group is organic and perceived as a normal socialising process [22].

When designing outdoor spaces suitable for teenagers, it is important to create "support points". These can be benches, tables, environmental objects, corners or poles. Objects that can be held on to create a more comfortable environment and a sense of safety. Teenagers, on their own initiative, will choose public outdoor spaces with more corners and the above-mentioned 'support points', as well as areas with distinct geographical boundaries. Relatively small and enclosed outdoor spaces create a sense of private and intimate space, allowing emotional release.

Overall, looking at the different generations and their needs, it can be concluded that the core values are the same for each generation, but that the needs and wants of age groups change according to the times and trends. It is important to understand the needs of younger generations in the design process, basing design choices on the needs of future users of the area. The tendency of younger generations to spend more leisure time indoors than outdoors is

due to the impact of digitalisation on lifestyles and the passivity of movement. It is therefore essential to integrate the digital aspect into the design and landscaping of areas [29].

Greenery is also important in areas suitable for teenagers. For example, areas of ornamental greenery and shrubbery separating play, gathering and open areas are recognised by children and adolescents as fun and exciting elements. Such areas provide interaction with nature and are inviting for activities such as hiding or creeping. It is important to create backdrops and separation of spaces where the area of public outdoor space is relatively large. Children and adolescents tend to hide and feel hidden. Such an environment distracts them and psychologically protects them from the people and dangers around them [10].

Children and adolescents are exposed to nature in a meaningful way, and observing and interacting with natural processes stimulates curiosity and excitement. Teenagers observe not only the people around them, but also animals, birds and fish if the gathering place is near water. Nature observation is an important process for psychological development and needs to be integrated into spatial planning [10].

It is important for teenagers to have a dedicated space in the public outdoor network that allows them to experience personal freedom. In cases where teenagers are unable to experience freedom in the public outdoor space network, abandoned or under construction houses, parking lots or natural areas become favourite places [28].

An alternative approach in cases where it is not possible to create separate public outdoor spaces for teenagers is to integrate public outdoor design features and Youth Policy into the city's network of public outdoor spaces. This urban solution is also suitable and appropriate for teenagers [22; 28]. Most of the teenage habits do not require special equipment, as engaging activities can be done almost anywhere, but the above-mentioned features of public outdoor space are preferred.

Recommendations

Guidelines for improving urban public spaces (planning principles to guide site selection, research and preparation, as well as the involvement of stakeholders, including adolescents, in the provision of public outdoor space networks and the implementation of projects):

For site investigation and conceptual justification:

- Conduct a study of territorial planning and regulatory documents, as well as identify territories that both the municipality and investors would be interested in developing.
- When choosing to develop public outdoor space solutions suitable for children and teenagers in the city, it is necessary to carry out a general survey and inventory of public outdoor space in the selected micro-district or in the city as a whole.
- It is necessary to look at the overall network of public outdoor spaces of a city or neighbourhood and the functions it provides, thus identifying the missing skills and connections.
- It is necessary to evaluate the functionality of the planned public outdoor space and its necessity in the city's public outdoor space network.
- Realizing the potential of the territories and the possible network of users, conduct a survey and inventory of the territory.
- It is necessary to draw conclusions about the identity of the territory, the existing amenities and its suitability for teenagers.
- To present the planned target audience with the conceptual idea of the territory.

For involvement of children and adolescents in the planning process:

- Conduct target audience research in the context of the territory or neighbourhood district.
- Carry out a survey of children and teenagers, identifying primary school education and vocational education institutions, as well as the most actively visited recreational places.
- Draw conclusions about the most visited places by children and teenagers and the main factors that make them attractive and engaging for teenagers.
- Identify the wishes and vision of teenagers, about the conceptual and design elements of public outdoor spaces suitable for them.
- It is necessary to carry out the indirect involvement of the target audience in the planning process - behaviour mapping. The application of the method discussed in the paper provides objective data on the habits of children and teenagers, the circle of consumers of activities and playground equipment.
- To create an opinion about the most used grooming elements of teenage girls and teenage boys.
- Create creative workshops, thus encouraging teenagers to participate and strengthening the principles of democratic upbringing and development.
- Create creative workshops in several rounds, providing the opportunity to socialize and cooperate with peers, with the involvement and support of professionals. Organize workshops in an environment where children and teenagers feel safe, free and open, for example in schools, parks, playgrounds and youth homes, in order to reach the widest possible target audience.
- Ensure the inclusion of the most appropriate ideas and solutions in the new territorial planning or project, which will strengthen confidence in the goals and necessity of public participation.
- Ensure a visible and accentuated realization of the idea or its part, thereby creating a sense of

satisfaction and pride in the teenagers for the joint work done. Emotional targeting will ensure active use of public outdoor space.

- It is necessary to supplement the youth policy strategy with instructions and recommendations for the successful involvement of teenagers in the planning process of territories intended for them.
- Supplement the youth policy strategy with the involvement of interest groups in workshops and seminars, where professionals can find out and listen to the opinion of teenagers on the planned projects.
- Territorial plans, for which the creation of public outdoor space is intended as one of the primary types of construction, should be supplemented with instructions on the minimum improvement of outdoor space. Thus, ensuring the inclusion of a well-organized, semi-public outdoor space in the overall city network.
- Develop detailed plans for territories where construction is potentially possible, but the territory functions as one of the points providing regular networks.
- Provide for the construction of squares at street intersections and unused squares, lawn areas.
- Determine the name of the environmental advertisement or the project of the square or other public outdoor space according to the wishes of the investor and the municipality, thus promoting the investor through environmental objects and the improvement of the city.

Conclusions

The development process of children and adolescents is an important stage in which representatives of each age group learn certain skills, which are mainly related to effective planning of free time, independent mobility, social interaction skills, awareness and understanding of social responsibility, as well as self-growth and self-awareness. In this development process, public outdoor space and its accessibility is vital and functions as an environment for learning skills.

Teenagers choose to stay in small, close and semi-enclosed, colourful public outdoor spaces with multifunctional and mobile amenities, as well as in an environment that is appropriate to the scale of the age group and promotes the formation of social interaction. For the age group, the amount of public outdoor space, not its extent, is significant. The age group has significant freedom of movement and action in the areas designated for them.

The involvement of teenagers in creating a public outdoor space suitable for them is essential. Essentially involve children and adolescents in the processes of creating an environment suitable for them, in order to understand and support the needs, wishes and interests of adolescents. An emotional connection is formed with the environment, the creation
of which teenagers are involved in, which motivates children and young people to stay in the public outdoor space, engage in physical activities, interact with natural elements, learn, as well as build a sense of community and feel safe and included in society.

It is necessary to introduce this process during the territory design, as well as to strengthen it in the development strategy of the municipality. The age group is not sure about the process of social involvement, therefore it is necessary to ensure a visually visible result in the projects, as well as to encourage young people to participate.

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Kopsavilkums. Bērni un pusaudži vienmēr ir bijuši nozīmīga daļa no sabiedrības un valsts nākotnes. Nereti pilsētvide tiek pakārtota un pielāgota ģimenēm ar bērniem, ierīkojot rotaļu laukumus un tam piemērotu infrastruktūru. Savukārt pusaudžu vēlme atrasties sabiedrībā, publiskajā ārtelpā un līdzdarbošanās sociālajā mijiedarbībā netiek pietiekami atbalstīta. Publiskā ārtelpa ir pusaudžu vecuma posma pārstāvju "skatuve", kurā pārbaudīt sevi, savas robežas un mācīties sociālās prasmes, kā arī izzināt sabiedrībā un kopienā vispārpieņemtās normas. Raksta mērķis ir sniegt ieskatu pusaudžu vajadzībām piemērotas vides veidošanas principos, sniedzot ieteikumus šādu publisko ārtelpu veidošanas procesam. Analizējot publiski pieejamo informāciju par pusaudžu vajadzībām un ārtelpas piemērotību viņu aktivitātēm ārtelpā, nākas secināt, ka bieži vien pilsētvides pielāgošana bērniem vai pieaugušiem cilvēkiem veicina pusaudžu sociālās grupas izolēšanu no sabiedrības, kas, savukārt, rezultējas ar pulcēšanos tiem nepiemērotās teritorijās, vandālismu un aizraušanos ar apreibinošo vielu lietošanu. Apskatot labās prakses piemērus ārtelpas veidošanai pusaugu bērniem, secinām, ka, lai mazinātu iepriekšminētos riskus, nepieciešams izprast pusaudžu attīstības procesus, emocionālās un psiholoģiskās attīstības īpatnības, kā arī aktualizēt demokrātiskas audzināšanas pamatprincipus sabiedrībā, tostarp publiskās ārtelpas plānošanā un izstrādāt vadlīnijas pusaudžu iesaistei pilsētplānošanā, kas tādējādi pašvaldībām palīdzētu šīs īpašās mērķgrupas iesaistē pilsētplānošanā, nodrošinot adekvātas publiskās ārtelpas izveidi pusaudžiem.

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The color of the surface of the Art object as a means of harmonizing the modern architectural environment

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Abstract. This article explores the characteristics of the colored surface of an Art object as a means of creating a harmonious architectural and spatial environment. The issue of increasing the comfort, efficiency, ergonomics and aesthetics of the design of the architectural environment, which is related to the global problems of humanity, is raised. Since the use of fine art elements in an architectural space should evoke only positive emotions, there is a need to use various types of Art objects in modern design. In our case, it is a competent and harmonious use of the colored surface of the Art object, because the artistic material itself is one of the main factors in fine art, which positively affects the aesthetics of the environment perception. Based on the results of the analysis, the main properties of surface color, which affect the perception of various types of artistic forms of Art objects, are determined and systematized. A structural model of the selection of artistic material during the creation of Art objects, taking into account their properties and characteristics, is proposed. The implementation of research results is shown on the example of author's works. The developed innovative methods of choosing various materials in Art objects are proposed to be used in the process of designing a comfortable and harmonious environment for human existence.

Keywords: Art object, art materials, coloring, architectural environment, space harmonization

Introduction

The growing importance of cities in the development of the population, environmental degradation, and the acceleration of the pace of life has an extremely negative impact on the health of modern people, both physically and psychologically. As a result, there is a need for improvement and greater aesthetics of the architectural environment. Everything that surrounds a person is organized with the help of certain spatial types of art – architecture, monumental-decorative, decorative-applied art. The object of art, in addition to its utilitarian-instrumental role, carries a certain emotion as a means of creating coherence in architecture, and the composition of form, color and light is a synthesis of emotional impression and semantic meaning. The issue of visual perception of space from an aesthetic point of view, as well as compensation of negative factors of the urban structure, is relevant, since the psycho-emotional state of a person is best restored by walks in the fresh air. The use of fine art elements in the architectural space should evoke only positive emotions, since the synthesis of art and architecture is beneficial in the perception of the architectural environment [19]. The feeling of balance and peace, obtained from the contemplation of an Art object, improves mood, creates mental harmony [3; 13]. Any Art object is created using various materials. For a designer and an artist, this is a material that is used to implement a creative idea [18-20] In addition to functional specificity, the material is capable of evoking certain associations, emotional gamut of different nature (for example, shiny material is often associated with positive emotions, while dull material is often associated with negative ones).

In the formation of the aesthetic perception of the surrounding space, artistic material can participate indirectly. It is a means of achieving expressiveness and imagery in solving aesthetic, stylistic and thematic tasks, a certain emotional load in accordance with the creative concept in the design of the architectural and spatial environment [20]. An Art object and its surrounding architectural environment always have a certain surface, respectively, have a certain texture that can give any form a different character, strengthening or weakening its plasticity. For example, gloss in contrast with a matte finish or in contrast with a relief texture helps to expand and destroy the space, reveal the advantages and hide the shortcomings [1].

In a modern architectural environment, various types of Art objects of artistic significance can be placed. They consist of different trends and possibilities of traditional and modern fine plastic arts, which: 1) painting; 2) sculpture; 3) graphics; 4) artistic design, etc.; 5) multimedia, video art, nano-art.

Therefore, it is necessary to determine the color properties of the surface of an Art object as a means of creating a harmonious environment with their subsequent consideration in the design of the architectural space at the initial stages of design.

Aim of the research is to state peculiarities of the Art object color surface as a means of harmonizing the modern architectural environment.

Materials and Methods

For analysis, the interdisciplinary areas are considered – the psychology of perception, art theory, restoration, chemistry and others [5; 8; 11; 14; 18]. Taking into account the modern scope of wide application, an analysis of methods for assessing the functional, aesthetic qualities of materials is carried out [10; 11; 16; 19; 26]. The results of the author's practical work and the creative experience of creating various objects of fine art in the field of design are used [4].

To date, there are works of a different nature, devoted to the properties of finishing materials and color pigments, the harmony of color compositions, where the issues of compositional features and color harmony in the architectural space are considered: contrast, nuance, visual perception of space coloring and shape adjustments, various illusions, supergraphics problems [18; 25]. The world-famous architectural magazines that exist today mainly describe the typologies of interiors and connect the color and the use of artistic decor elements in it with its psychological and emotional impact on a person. Unfortunately, articles published in magazines devoted to color (the effect of color on the human environment, its relationship with the environment on the examples of realized architectural and design objects) are only descriptive and illustrative. In general, the communicative-informative system of exchange with the external environment has outlined the current trends in visual and design practice and, in its ideological, constructive and functional component, is directly related to the introduction of modern new technologies [12]. Hence, the constant search for new methods of design activity to gain the expressiveness of creative objects in search of harmony between the subject and the environment [27]. Modern decorators rely on the emotional-associative perception of architectural form and color, the creation of a new compositional idea or, adhering to other principles for creating new objects, the preservation of historical architectural heritage with the possibility of organic adaptation to modern man, while using new approaches. Modern Art objects, as one of the main elements, are used in design to create an aesthetic, ecological and functionally harmonious architectural and spatial environment [13; 16; 17; 27; 29]. With the development of new technologies, special stylistic and plastic techniques are revealed in Art objects and the prospects for using combinations of materials with their updated qualities [9; 26].

The functional features of the use of modern and traditional materials that are used in art objects are analyzed. The systematization of materials used in classical and modern art forms are made. The used research methods make it possible to study the main compositional and aesthetic properties of the color of the surface of the Art object in the modern architectural environment. Also, on the basis of theoretical and practical experience, the main factors affecting the perception of the texture of colored surfaces of various types of artistic forms of Art objects are determined.

Results and Discussion

Any material has its own visual features, which in certain environmental conditions affect perception in different ways. It is the material that evokes a gamut of associations – heat and cold, heaviness and lightness, hardness and softness [17; 21; 29]. Depending on the coating, quality and processing methods, the surface material of the Art object can create a certain optical illusion [7; 28]. By creating new technologies and enriching the arsenal of the artist-designer, modern science has saturated the field of art with a large number of materials, innovative in their structure, for creativity. A modern artist freely chooses ways to realize his/her creative idea, operating with various properties of materials and combining their qualities.

When creating various Art objects, all materials used are selected according to their quality, physical and plastic properties, purpose, structure, composition and manufacturability. In many areas of human activity, rapid scientific and technological progress provides enormous opportunities for innovation, which also ensures the creation of new materials for the work of artists, designers in the fine arts [20].

Decorative, graphic and artistic-plastic properties of Art objects are revealed and supplemented by expanding the qualitatively new possibilities of modern materials [18]. Innovative materials significantly expand and enrich the possibilities of fine art, evoking a different emotional state in a person. Their use in art objects, in addition to aesthetics, brings new qualities: environmental safety, innovation, efficiency, versatility. For example, the use of fluorescent paints, which, when applied, are able to give off accumulated light energy, increasing energy efficiency and visibility indoors [17]. Thermochromic paints are able to change their color, thereby affecting perception. Polymers and various types of plastics (a carbon composite material consisting of graphite fiber embedded in an epoxy matrix) is a modern high-strength and at the same time lightweight material capable of imitating various types and breeds of materials [11]. Acrylic is a type of plastic used in art objects as an alternative to natural material, provides resistance to the microclimate of the interior and time with high environmental friendliness [26]. Among other things, it is worth noting a new creative direction, which is a symbiosis of science and art and aims to create an innovative cultural product – nano-art [19; 20].

The realization of the creative idea of artists-designers depends on the properties of the surface of the material used and the nature of its processing. The textural possibilities of the colored surface of the Art object and the architectural environment come to the fore when it comes to the composition of space. For an artist, designer, architect, it is necessary to understand that the properties of color, their interaction with the texture of the material of the object that is the carrier of color, depends on the nature of the reflection of light from the surface, the degree of texture of the color, and the location of the object in the spatial environment. When designing, an architect, designer, decorator must take into account the fact that color can complement the properties of the material or deliberately enter into dissonance with it, depending on the overall compositional task or a specific design problem that it solves.

The architectonics of the material in art objects is one of the main tasks to be solved.

1. Saturation of the colored surface of the Art object and general lighting – the more saturated the color, the more difficult it is to consider the texture and its lightness (degree of illumination). With very strong or insufficient lighting, there is a slight decrease in the texture of the colored surface. Sunlight, especially when viewing an Art object from a long distance, can cause a phenomenon of brilliance, and a brilliant color is characterized by having an inhomogeneous structure, textured and textureless color areas associated with heterogeneity in color tone. Accordingly, the light reveals the perception of the color of the Art object in different ways:

1) the lighter the surface, the more light is reflected;
2) achromatic surfaces reflect any light rays equally;
3) chromatic surfaces reflect light rays to a greater or lesser extent – depends on the surface of the object.

2. The farther the Art object is from the observer, which can enhance or level the effect of perception of its colored surface texture, the more even and smooth this surface becomes. When viewed from afar, all colored surfaces shift slightly towards texturelessness. Color also has texture. Textured and non-textured possibilities of a colored surface differ according to color tone, saturation, lightness, distance, lighting and nature of the material [20]. The greater the distance to the observer, the worse the surface texture is perceived, the smoother, smoother this surface becomes.

3. The property of the surface of the material (transparent or opaque) of the Art object and the nature of its processing (matte, semi-matte, glossy). The surface in one dense color with a matte texture, which has a diffuse diffused light, makes it impossible to shine, emphasizes the two-dimensional shape. The glossy texture of a colored surface, due to glare and specular reflection of light, distorts the plane itself and the perception of its color. The rougher, granular materials, the more noticeable the texture and the greater the distance from which it is visible. If the surface has a very pronounced texture, then it will be visible from any distance, even from a fairly large one:

1) matte painted surface, not transparent (finely porous, rough) – expresses the properties of colors and their ratio, creates a favorable visual environment, creates the impression of spatial certainty in the architectural environment and reveals the shape and plasticity of the Art object;
2) semi-matte colored surface is not transparent (fine-grained, hardly noticeable texture) – the colored surface of all materials from which the Art object is created, which gives a glossy sheen, does not reflect surrounding objects, but has a weak glare;
3) glossy, not transparent (absolutely smooth, mirror texture) – the surface has light reflections, very bright from a certain point of view, but dark from all others, reflecting objects (mirrors, polished surfaces, metal, colored glass, etc.), the color is not uniform in hue, and in places of glare it completely loses saturation, sharply changes lightness, acquires many shades, in an Art object, the use of a shiny texture in a huge amount can give festivity, grandeur, variety;
4) transparent (completely transmits light, glossy texture) – the surface is transparent, a strong deformation of the visual perception of the color surface and volumes of Art objects is possible, distorted colors, their ratio disturbs the overall composition of the architectural space and the Art object located in it;
5) translucent (partially transmits light, semi-matte texture) – the surface has the properties of a transparent and matte texture, the colors of the Art object are perceived as low-saturated, the volume of the form may lose its real dimensions [7; 21].

4. The color tone of the surface of the material of the Art object, its saturation and lightness:

1) warm colors are perceived as more substantial, dense, thick, condensed on the surface;
2) cool colors are more airy and have depth;
3) the richer the color, the harder it is to see the texture;
4) highly saturated colors are less textured than undersaturated ones;
5) white color is perceived more textureless, just as strongly lit color deprives it of texture.

Typical examples of the use of Art objects in a modern architectural space using the capabilities of a colored surface can be seen in TABLE 1.

TABLE 1

Examples of using Art objects with color surface capabilities [created by authors]

	Properties and nature of processing colored surface of the material of the Art object				
	Glossy surface (mirror reflection)	Matte coating (diffuse reflection)	Semi-matte surface (partial takeover)	Translucent surface (partial takeover)	Transparent surface (total light transmission)
Outside space	 "Mirror Mirror", Alexandria, Virginia, USA. Sculpture installation, colored mirrors. Artistic design studio SOFTlab [22]	 "Themis", Kyiv, Ukraine. Sculpture, gray granite. Sculptor: A. Polubok (author's photo)	 "Golden Child", Odessa, Ukraine. Sculpture, bronze. Sculptor: E. Neizvestny (author's photo)	 "Cobalt Muffin", Shanghai. Sculpture installation, Colored and textured glass, Artistic design studio "Atelier YokYok" [6]	 "Arboria exhibit", Washington, USA, colored glass. Sculptures, installation Sculptor D. Moore [24]
Interior space	 "Reflection". Desk lamp, white metal. Designers-artists: and A. Polubok (author's photo)	 Cathedral of St. Paul Odessa, Ukraine. Wall painting, acrylic paint. Painter: T. Kammerer (author's photo)	 "Africa". Wall relief, Kiev, Ukraine. Wall relief, gypsum, acrylic paints. Designers and artists: O. Pilipchuk and A. Polubok (author's photo) [2]	 "The Aurora", Paula Airport, Minnesota, USA, decorative forms, textured, coloured glass. Artist J. Lewin [4]	 Natural History Museum, Shanghai, decorative architectural forms made using nanotechnology. Designer: Perkins and Will (photo: James and Connor Steinkamp) [23]

Based on theory and practice, a structural model of the selection of artistic material for objects of fine art has been developed, taking into account their properties and characteristics. This model is based on the analysis of the properties of various artistic materials in relation to the creative idea, performance technique, functional tasks, as well as the possible emotional component in the perception of the work.

Considering the fact that modern design uses various objects of fine art, both classical and innovative materials are included in the structural model. As a result of research at various levels of applied art, the following artistic and performance materials have been discovered:

- In painting: oil paints, watercolor, tempera, acrylic, gouache, water-emulsion, water-dispersion, mineral, encaustic, PVA (polyvinyl acetate) enamel, silicate, neon materials and fluorescent paints.
- In graphics: different types of colored pencils, felt-tip pens, ink.
- In sculpture: gypsum, metal, concrete, cement, natural wood, natural stone, ceramics (glaze, terracotta, enamel, fireclay, earthenware, etc.), glass, synthetic materials (various types of plastics and resins).
- Surface decoration: paper (papier-mâché, decoupage), colored foil (silvering, gilding, patination, etc.), mosaic, collage for the inlay technique.
- Technologies used in modern art: nanosolutions, polymer paste, organic resins, thermochromic paints.

The main research results are presented in TABLE 2.

TABLE 2

A structural model of the use of visual materials in an architectural environment (fragment)
[created by authors]

Execution material		Type of surface material			Environmental friendliness and resistance of the material used to weather conditions				Changes in the overall hue and saturation of colors over time				Artistic characteristics of the material
		matt	glossy	semi-matt	sunlight	humidity	dryness	temperature regime	safety	darkens	does not change	brightens	
Traditional materials of classic art	Oil colors	-	+	+	-	-	-	+	-	+	-	+	Creation of complex color effects
	Gypsum (tinted or painted)	+	+	+	+	-	+	+	+	+	+	-	Creation of various plastic forms
	Stone (dyed or natural)	+	+	+	-	-	+	+	+	+	-	+	Creation of compact rigid forms
	Wood (colored or natural)	+	+	+	+	+	+	+	+	+	-	+	Creation of various plastic forms
	Metal (cast, forged, chased)	+	+	+	-	+	-	+	-	+	-	+	Creation of various plastic and openwork forms
	Concrete	+	-	-	-	+	-	+	+	-	-	-	Creation of compact brutal forms
	Paper (decoupage, papier-mâché)	+	-	-	+	+	+	+	+	+	-	+	Creation of decorative plastic forms
	Ceramic products (majolica, terracotta, faience, fireclay, etc.)	+	+	+	-	-	-	-	+	-	+	-	Creation of decorative colorful plastic forms
Innovative materials of contemporary art	Organic resins	+	+	+	+	+	+	+	+	-	+	-	Unlimited possibilities for creating imitations of various materials
	Fluorescent materials, neon paint	+	+	+	+	+	-	+	-	+	+	+	Creation of decorative color effect and the ability to accumulate light
	Acrylic paints	+	-	+	-	-	-	-	+	-	+	-	Versatile possibilities in creating color effects
	Nano-solution	+	+	+	+	+	+	+	+	-	+	-	Creation of innovative complex forms based on modern technologies
	Thermochromic paints	+	+	+	+	+	+	+	+	+	+	+	Creation of decorative color effect and the possibility of light accumulation
	Polymer paste	+	-	+	+	+	+	+	-	-	+	+	Creation of decorative forms with limited plasticity

a

b

c *d*

e

Fig. 1 (a-e). "Childhood Alley", Kyiv, Ukraine. Sculptor A. Polubok [author's photo]

Figure 1-3 depict artistic compositions of various functionality based on the developed instrumental-variant model, which are implemented in the architectural environment.

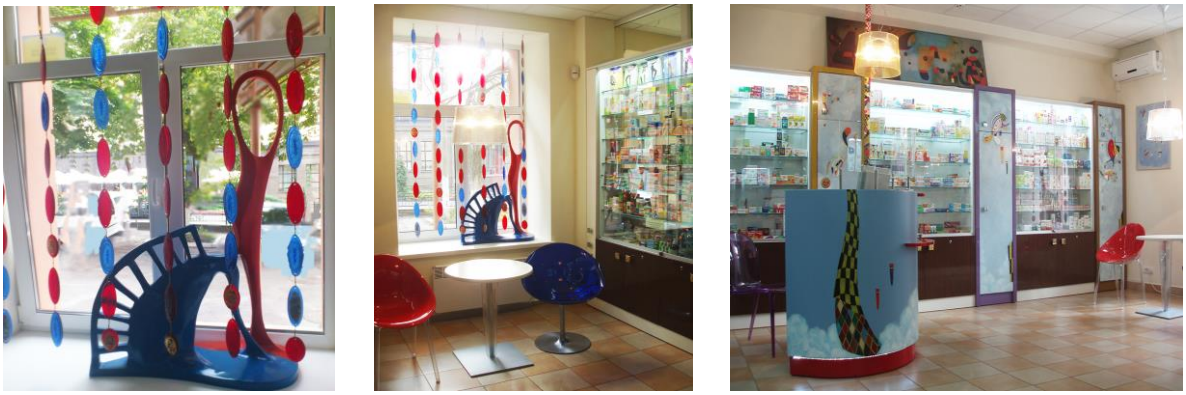
Figure 1 (a-e) presents a series of author's modular sculptures – "Childhood Alley" playground. The sculptures are made of concrete and painted with weather-resistant and durable acrylic paints. The compositional construction of different figures is based on the principle of combinatorics, with the help of which each new image is made up of modules of the same type, but different in size. The sculptural complex is a series of decorative sculptures made in the same style with a limited but uniform color scheme. An open color scheme harmoniously combines the sculptural complex with sports game elements and complements the color composition in a specific environment. They are also bright accents in the gray urban architectural space. The matte surface (coloring) of the sculpture was chosen by the author on the basis of the developed textures, for a better perception of the colors of the spots on the form, without distorting it. Also, the slight texture of concrete is negated due to the use of matte coloring and textureless cold colors in contrast with warm textured. Due to this, the forms of the sculptural complex are perceived quite brightly, in silhouette and are clearly distinguishable in space. The materials used for the sculptures are eco-friendly and safe for children. Playing on the playground, children guess new or already familiar images by the silhouette and color in each figure. As a result, the sculptural complex not only has a game function, but also develops children's imagination and imaginative thinking.

Figure 2 (a, b) shows a plaster relief on which tinted material on an acrylic base is applied.

a

b

Fig. 2 (a, b). Wall relief in the interior of the apartment, Kyiv, Ukraine (artist-designer – O. Pilipchuk, sculptor – A. Polubok) [2]



a b c

Fig. 3 (a, b, c). Sculptural composition and decoupage in a pharmacy, Kyiv, Ukraine.

Sculptor A. Polubok, artist O. Pilipchuk (author's photo) [2]

The semi-matte gloss of the coating does not destroy the relief form, but on the contrary – reveals its plastic quality. The materials used are environmentally friendly, safe, durable and practical for residential interiors. The color scheme of the Art object is contrasting with the background, and also illusory creates the impression of a new artistic element of the architectural form, in harmony with the entire interior space. Semi-gloss paintwork does not cause emotional discomfort in the architectural space. The compositional placement of an object of fine art in the interior performs an aesthetic and utilitarian function. It is responsible for the integral spatial solution, as well as the visual design of the entire interior.

Figure 3 (a, b) shows a sculptural composition made of epoxy resin with the addition of colored pigment. The glossy sheen of the material and the brightness of the color evoke in the potential buyer the emotion of freshness, novelty, a kind of gloss. The durability of the modern material makes the sculpture practical for use in public spaces. Thanks to the contrast ratio of warm and cold (red and blue), the composition introduces dissonance and conflict into a single sculptural form, thereby attracting attention to itself. At the same time, dissonance gives attractiveness to the interior space and at the same time combines with the overall color of the interior. Figure 3 (c) shows the interior of a pharmacy with furniture decorated using decoupage technique, which also has a semi-matt surface. The use of ecologically clean materials brings harmony to the overall composition, creating a sense of sterility and security in pharmacy visitors.

So, it is the material used in the fine art objects that are an integral part of the interior that determines their aesthetics and functionality. Accordingly, the innovative design approach proposed in the article is promising. The implementation results show that the developed tools can be improved taking into account the latest technological developments (in the field of paint and art materials industry), as well as modern requirements and human needs. Therefore, the introduction of the identified characteristics of the materials of the paintwork surface and the developed model shows the correctness and is recommended for use.

In the modern interior, it is important to solve the problem of creating an ecological internal environment, its aesthetics and functionality, where one of the main elements is the use of objects of fine art [3; 13; 27; 29]. The development of nanotechnology contributes to the emergence of new stylistic trends. A significant amount of research is devoted to these questions [9; 26]. But, unfortunately, what concerns the problems of creating a comfortable architectural environment with regard to the aesthetics of the used artistic materials has not yet been sufficiently explored.

Conclusions

The interrelation and interaction of color with the form of the Art object comes to the fore when it comes to the compositional and artistic role of color in the architectural space. The patterns of such interaction are the basis of symbiosis. The regularities of space construction using different types of art objects and taking into account the capabilities of the colored surface can be made more obvious and easy to perceive. With the help of a colored surface, it is possible to reveal the features of the form of an Art object, as well as to form an artistic image of the overall composition of the architectural environment. Three-dimensionality and size play a decisive role. Using the capabilities of a colored surface, it is possible to prevent the static nature of an Art object, turn a symmetrical shape into an asymmetric one or vice versa, illusorily reduce or increase the overall dimensions, break the centricity, change the illusory shape, completely deform. With the help of artistic material, it is possible to solve various interior design tasks and influence the aesthetic perception of a person of everything that surrounds it. This is a certain condition for achieving expressiveness, imagery, emotionality in accordance with the creative idea in

interior design. Based on the research results, the properties of the texture of the colored surface were systematized and determined, and methods of its use in various types of Art objects were proposed as a design tool in order to create a harmonious architectural environment. The developed structural model can serve as a basis for the selection of artistic material of Art objects in order to increase the aesthetic, emotional and functional qualities of the design of the architectural environment in accordance with the needs and living conditions of modern people.

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Kopsavilkums. Šajā rakstā tiek pētītas mākslas objekta krāsainās virsmas īpašības kā līdzeklis harmoniskas arhitektoniskas un telpiskas vides radīšanai. Tiek aktualizēts jautājums par arhitektoniskās vides dizaina komforta, efektivitātes, ergonomikas un estētikas paaugstināšanu, kas saistīts ar cilvēces globālajām problēmām. Tā kā tēlotājmākslas elementu izmantošanai arhitektūras telpā vajadzētu izraisīt tikai pozitīvas emocijas, mūsdienu dizainā ir nepieciešams izmantot dažāda veida mākslas objektus. Mūsu gadījumā tā ir mākslas objekta krāsainās virsmas kompetenta un harmoniska izmantošana, jo pats mākslinieciskais materiāls ir viens no galvenajiem tēlotājmākslas faktoriem, kas pozitīvi ietekmē vides uztveres estētiku. Pamatojoties uz analīzes rezultātiem, galvenās virsmas krāsas īpašības, kas ietekmē mākslas objektu dažāda veida mākslinieciskо formu uztveri, ir noteiktas un sistematizētas. Pētījuma rezultātu realizācija parādīta uz autordarbu piemēra. Izstrādātas inovatīvas metodes dažādu materiālu izvēlei, izmantojot cilvēka eksistencei ērtas un harmoniskas vides veidošanas prasības.

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Communicative Proactivity in Architectural Initiatives Supported by the Lithuanian Council for Culture

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Abstract. The paper aims to highlight the need, distinctive features and problematic issues of cultural and communicative activities in architecture field by using a case study of the projects in architecture funded by the *Lithuanian Council for Culture* (LCC). The identification of the problems in supporting non-commercial initiatives in architecture since 2014 up to 2020 is the scope of this paper, which is developed using an analytical descriptive approach. The analysis covers scientific and professional literature, legal documents, recommendations of professional architectural organisations, information from the LCC and semi-structured interviews with 7 experts. Problems regarding the funding of projects in architecture by the LCC are identified by using statistical information from the LCC database and the dissatisfaction/satisfaction with LCC activities, project approval for funding, general issues of cultural policy expressed in interviews, and by looking for correlations between them. Analysis of the statistics of project funding reveals several problems. Funding for the projects in architecture field is particularly low, compared to the projects in other fields of culture and art. Geographical distribution of architectural projects is uneven, as majority of projects were submitted by applicants from Vilnius. Funding is mostly allocated to institutions with experience, established groups of participants and time-tested ways of operation; non-standard, breakthrough initiatives are rarely supported.

The article states that problems related to the dominance of the narrowed concept of architecture, to the lack of cultural communication, and to the modest public knowledge of architecture lead to the devaluation of architecture and, consequently, to the diminishing of the quality, diversity and long-term cultural value of the surrounding environment. Architectural education of society would be the most effective way to address these problems. It is important to grow everyday users, politicians, investors, developers, activists, and preservers of local heritage able to understand and critically evaluate architecture. In order to increase the cultural significance and importance of architecture for society, architecture practitioners and theoreticians should be encouraged to make the most effective use of the opportunities offered by the LCC. Activities to be funded should be selected by the potential long-term value of their results and their impact on the public and/or the professional community. In order to balance the geographical distribution, revisions to the list of evaluation criteria and their weight should increase access to support for activities in regions, for ambitious early applicants and for innovative, out-of-the-box undertakings.

Keywords: architectural communication, cultural activities in architecture, architectural education of society, financial support for culture, Arts Council

Introduction

In recent years, European architectural policy has gained acceleration towards comprehensive, culture-centred approach and high-quality architecture. The steady movement represented by awards promoting the quality of contemporary European architecture and by a range of EU initiatives has been recently marked by a breakthrough in the notion of a high-quality environment as declared in the *Davos Declaration* [9] and its accompanying documents [7], and *New European Bauhaus* [8] movement.

The lack of cultural communication, social involvement, cooperation and education between the professional community of architects and society is a persistent and acute problem both in Lithuania and other European countries. This has a negative impact in a few directions. Rather than being treated as a cultural and artistic field, architecture is considered as a part of the construction sector with cultural contribution of architecture being overshadowed by its design production. Despite the social, economic, cultural significance of architecture and its daily exposure, the public is not aware of architectural processes and their results, and consequently of their importance and impact, thereby often failing to seek quality. The devaluation of architecture affects the quality, diversity and long-term cultural value of the surrounding environment, its change and development. The *Lithuanian Council for Culture* (hereinafter referred to as LCC) established in 2013 tries to address these challenges by funding cultural activities in architecture. The targeted funding is directed towards non-commercial actions that have no direct relations with architectural design and are focused on cultural development being not funded or underfunded by other sources.

The identification and causality of the problems of support of non-commercial initiatives in architecture is the research area of this paper. The article deals with the projects in architecture

supported by the LCC that are considered as a way and a tool to ensure the cultural dissemination and to address communication challenges in the broad field of architecture. The aim of the paper is to highlight the need, distinctive features and problematic issues of cultural and communicative activities in architecture field by using a case study of the projects in architecture funded by the LCC. The period analysed covers the timespan from the start of project funding in 2014 to the start of a pandemic in spring of 2020, which disrupted the usual procedures. The paper is developed using an analytical descriptive approach. The analysis covered scientific and professional literature, legal documents, provisions and recommendations of professional architectural organisations, information from the LCC: funding statistics [15] and a summary of the initiators of projects demonstrating the ratio of the funds requested to the funds received from the LCC provided on the official website *www.ltkt.lt*, and semi-structured interviews with 7 (seven) experts. The semi-structured expert interviews were carried out with a selected group of respondents (4 persons from Kaunas and 3 persons from Vilnius; 3 men and 4 women; representing different creative generations, having many years of experience in cooperation with the LCC both participating in the calls of institutions and implementing the funded projects in architecture field). In the text of the article, the respondents are coded in consecutive order, with the abbreviation of their city of operation (Vilnius or Kaunas) and their gender (male and female). The answers of the respondents were analysed and interpreted without changing the opinions and positions expressed by the respondents. The interviews were written and/or oral. To address the need for cultural and communication activities in architecture field, and the reasons for their lack of scientific literature, legal documents and the attitudes of professional organisations of architects were investigated. Problems regarding the funding of projects in architecture by the LCC were identified by using statistical information from the LCC database and the dissatisfaction/satisfaction with LCC activities, project approval for funding, general issues of cultural policy expressed in interviews, and by looking for correlations between them.

In the XX century, the governments took over the distribution of public funds for the arts and culture from wealthy patrons. According to the list provided by the International Federation of Arts Councils and Culture Agencies (IFACCA), in part of European countries, the funding of the arts and culture is handled by the national Arts Councils, in the other part by the ministries responsible for the field of culture [27]. National Arts (Culture) Councils are government non-profit organisations dedicated to promoting the arts and culture through the provision of grants or other forms of financial assistance to individual artists and arts organisations. They often operate in a semi-autonomous way at arms-length from the government to prevent political interference in their decisions. This conceptual model was adopted from funding academic research and applied to arts funding by the economist J. M. Keynes, who established the Arts Council of Great Britain in 1946 [29]. At a similar time or later, national Arts Councils were established in other European countries, such as Switzerland, Ireland, Nordic countries, and others. Speaking of the closest neighbours of Lithuania, the practice in Estonia and Latvia is based on their cultural policy. The Ministries of Culture provide support to the development of the architectural sector by granting State funds. The Ministry of Culture also supports the participation of Latvia in the international Venice Architecture Biennale, the organization of the process of the Latvian Architecture Awards, and other activities. The practice in Poland is quite different: heritage architecture is considered part of the cultural field, while contemporary architecture is determined to be within the responsibilities of the Ministry of Economic Development and Technology [17].

The literature analysis reveals several questions that have been raised concerning national Arts Councils' priorities for arts support policy, such as consumerist and mediating approach towards art acknowledged as an 'industry' [11]; instrumental cultural policies that stress the measurement of public value in clear and quantifiable ways and a short-term solution to adopt 'impact' as a short-cut for 'value' [4, p. 106]; "a common pressure on national organizations to consider "the local" and to develop place-based approaches as a priority" [6, p. 325]. National Arts Councils redefine "their roles beyond that of determining the beneficiaries of government funds, to that of agencies developing creative practice, promoting organisational growth and stimulating arts audiences" [1, p. 9]. Although many studies have analysed the funding activities of the Arts Councils in the national context [1, 4, 6, 17], regretfully, no analysis of the funding of the field of architecture by national Arts and Culture Councils, nor the activities of the LCC, has been found in the scientific literature. These underexplored fields are the preconditions for the novelty of this study.

Preconditions for the lack of significant communication and cultural contribution

According to Architects' Council of Europe, architecture is the only one of the arts that everyone needs as it provides a physical shelter for all human activities; ironically, it is the one that is least known

to the public [25]. Despite the social exposure and economic importance of the built environment, the significance of architecture as a cultural and artistic field is poorly recognised by society, whereas the architecture professionals feel unacknowledged. The cultural and artistic background of architecture is often overlooked in legal, administrative, evaluation processes, in the execution and implementation of architectural projects, where architectural creativity is simplified and devalued to procedures, an utilitarian level of construction or an economic calculation of costs. The devaluation of architecture is accompanied by unsustainable construction, faceless urban expansion, vanishing cultural values, identity, traditions, lost historical sites, etc. [9]. Most of these tensions could be explained by the low level of public attention to architecture and its ignorance, the lack of communication traditions and the inability to create new ones as well as by the distancing of the architectural professional community from society.

The causality of the devaluation of architecture should be looked for in its dual conception. In its broadest sense, as part of the cultural phenomenon, architecture is significant for its respect to the heritage, time values and place identity, for public involvement, formation of people's behaviour and welfare, for long-term results and immediate availability. The *Davos Declaration* (2018) calls architecture as a cultural act since the ways in which society coexists, develops and shapes its environment are cultural at their core [9]. The *Davos Declaration*'s commitment to develop high-quality architecture is refined and prepared for practical usage by the European Commission document *Towards a Shared Culture of Architecture: Investing in a High-Quality Living Environment for Everyone* (2021) [7]. Both documents are based on a holistic approach to architecture, growing out of the culture-centred approach where the concept of high-quality architecture includes the active creation of social cohesion and welfare, ensuring environmental sustainability and contribution to global health and well-being [7]. A significant shift towards the quality of architecture in correlation with environment and society, can be found in the *New European Bauhaus* movement and its values, which are growing into a new cultural project: *beautiful* | *sustainable* | *together* [8]. The abovementioned initiatives outline a clear vector of architecture as a cultural phenomenon towards "architectural quality and design thinking as key contributors to the transformational movement" [7, p. 3].

The definition in the *Law on Architecture of the Republic of Lithuania* (2017) stating that "architecture is functional, spatial and visually perceivable artistic formation of buildings, urban complexes and landscape" [16], however, reduces architecture to design of architectural objects and spaces, i.e. to the formation of the built environment and its material results. This approach is closely linked to the regulation of the architect's profession in the European Union countries to ensure public interest, public health and welfare, and to the regulation of architectural activities by legal documents of construction. *The Professional Standard for Architecture Sector* (2018) agrees that activities in architecture 'are very diverse, but essentially consist of two basic types: design-related activities and services, activities and services not directly related to design' [3]. In Lithuania, legal regulation by laws and other legislation as well as ensuring of professional qualifications are obviously focused on the narrow direction of the concept of architecture, i.e. on creation and implementation of the material product of the built environment, leaving the component of culture outside the defined field. The narrow interpretation of architecture, which centres on architectural design as a commercially regulated activity, disconnects it from the cultural-value framework, from social needs and expectations, interdisciplinary merging of different spheres of human activity, from multifaceted perception, interpretation and representation of architecture, and thus from all that makes architecture complete and of high quality.

Let's compare these two concepts of architecture and its directions of activities. The narrow conception of architecture is related to the construction industry, while the broader, complex conception is linked to the cultural realm. In the prevailing narrow conception, architectural design for the development of physical structures is ordered and funded by public and private sectors, and its processes are regulated by legal instruments. Architectural projects are realised by the persons with an architectural education and a relevant professional qualification, as satirised by Samuel, by the real architects, as "only architects who build things are deemed to be real" [22, p. 154]. In terms of demand, funding and number of participants, architectural design works are significantly larger in scale than the activities and services not directly related to design. The latter activities and services include public education and its training for a thorough understanding of the environment, critical analysis of architecture, its communication, monitoring and studies, hereby involving both professionals with an architectural background and professionals in related fields with activities connected to architecture: art critics, heritage conservation experts, historians, sociologists, artists, etc. Many of these activities are not profit-making, therefore, not funded by the private sector. Some are funded by the public sector, but often insufficiently. Hence, these initiatives remain overshadowed, outside the scope of architectural activities.

Weak points of sustainable communication are also found in the architectural education of society. Nowadays architecture is a component of the great culture is being questioned. The holistic ideology known since the ancient times has been forgotten altogether or has become the subject of the modern discourses [2]. As the architecture criticism article "Why You Hate Contemporary Architecture" states, "Nothing built today must be mistakable for anything built 100 or more years ago. The rupture between our era and those of the past is absolute, and this unbridgeable gap must be made visible and manifest through the things we build" [20]. The author is obviously referring to the visual differences. According to Robinson, the needs and wishes of the buildings users are rarely taken into account today. He is concerned that the professionals already trained at architecture schools are too focused on mathematics, engineering and the theory of form. The perception of the craft, emotions and architecture as the epicentre of the great culture is emphasised insufficiently. A strictly mechanical worldview leaves no room for human consciousness, for our personal and emotional relationship with universe. Perez-Gomez, one of the most eminent contemporary phenomenologists of architecture, points out that "An environment that becomes increasingly devoid of qualities, reduced to a set of coordinates in a global positioning device, for instance, tends to exacerbate our contemporary psychopathologies – our sense of despair in view of the "meaningless of existence", contributing to a debilitating nihilism" [19, p. 109]. The final outcome of the architectural process cannot be determined at the origin as the process is variable, whereas the meanings can be redefined and reconsidered during the process [5]. In view of this multidimensional concept, it can be said that architects and society are involved in the process of architecture as players communicating with each other through the meanings assigned to architecture. In other words, the relationship between technology and creation in the communication process of contemporary architecture is uneven. In particular, by moving away from the aspirations of holistic design and by failing to recognise architecture as a relevant component of the great culture.

The reasons for the paradoxical situation why architecture is poorly known to society despite its constant use should also be found in the lack of communication resulting from the deliberately created autonomy and closeness of the profession: self-organisation, self-regulation, elite self-positioning etc. According to Till, "the will of architects to erect and then maintain boundaries around the discipline of architecture is one of the defining characteristics of the profession" [28, p. 5]. Some distancing emerges from the general criteria defining professions such as university-level education, internship, knowledge and norms of practices (as codes of ethics), established disciplinary identity and autonomy [30, p. 70]. Another restrictions separate architects as professionals through the features of control such as limiting access to the profession, certifying competence to practice, accountability of external bodies that set detailed requirements, monitor performance and sanction failure [18]. Furthermore, the community of architects wraps its identity in a unique professional worldview, beliefs and rituals, like a 'club' culture. A distinctive collective identity is evolved through competitions and awards, profession-oriented magazines, similar lifestyles and choices. Professional self-consciousness seeks segregation from other members of society [24, p. 11-12], often accompanied by a dominant elite orientation elevating itself above the unintelligent and uncreative society [23]. In the profession of architecture, ideals outgrow the fundamental values, become like a belief-system, a creed that with its obsessive and all-engaging nature could be compared among other professions only to soldiering and priesthood [21]. The fostered unique character, autonomy and closed nature of the discipline deepens the gap between the community of architects and the general public. The fact that society has actually no idea of what architects do, why, how and what kind of works are produced is one of the results of poor communication, insularity and detachment of architects from the rest of society.

Cultural communication in architecture from the perspective of professional community

Weak assumptions of communication in architecture field are being responsibly noted by some members of Lithuanian professional community. This fact is positive as it presupposes the possibility to change the tradition of unsustainable communication and fruitless dialogue between architects and the public. Certain qualitative changes in communication were initiated by the professional community through the activities of the Chamber of Architects such as the clarification of the criteria for architectural quality, the criteria for architectural quality established by the *Law on Architecture of the Republic of Lithuania* (2017), and the activities of the Regional Councils of Architecture operating since 2018. To enhance the demand for architectural quality and the vision of its artistic nature beyond the professional community, education, training and information of the society, especially of its part that affects the processes of urban development, is essential. As architect 4-V-f representing the professional press says: "It is now that a turning point is taking place in the way future generations will perceive architecture, so architects,

architecture historians and art critics should do as much as possible to educate society and to introduce quality architecture and its styles." The words illustrate that an opportunity for communication between the society and the architects is seen by the respondent as a possibility for both the architects and other professionals, for whom the field of architecture is a source of activity. It is a positive approach suggesting that architects are not the only ones able to communicate about architecture and to influence the development of the field. It is a conceptual communication message about the relationship between the real image and its representation: "In the case of conceptual message, what is not the building itself is communicated through architecture as a media: collective identities and the ideas that define them: transparency, progress, solidarity" [21]. Here, the role of a mediator can become both a determining and value-adding factor.

Is today's society ready to connect architecture with culture? "Most of society do not perceive new architecture as an event of the cultural environment, as an artistic phenomenon representing culture. Especially among investors and developers, architecture is generally seen as a craft, a component of the construction process, with the final result being expressed in square metres and the price paid for them," thinks architect 3-K-m. This idea supports the authors' assumptions about missing cultural element in the conception of architecture. Architect 6-V-m both contradicts and agrees with it: "Craft is a necessary component of any creation, and not only of it. It is right to be a good craftsman. Then the artwork can be produced. This overproduction of craftsmen in almost all areas of culture also has a certain positive result - through quantity to quality. The only trouble is that there are far more 'quantity craftsmen' and they are either dumping the value of the work or looking for some other source of livelihood, one of which is the 'crumbs' of the LCC. 'High-quality craft' does not have to be generally acceptable, the key point is that those who don't accept it are not the critical mass of society".

According to architect 3-K-m, "the general perception of the quality of architecture by society is quite low, it has not received any education in this field, and therefore is unable to assess architectural processes properly." Here, we could mention the recent works publicly condemned but not grounded on knowledge-based assessment: restoration of Zapyškis Old Church of St. John the Baptist and landscaping (architect G. Prikockis), the building of St. Mary's Radio in Vilnius street, Kaunas (E. Miliūnas Studio: architects A. Ramanauskas, D. Miliūnienė, D. Karalius), etc. Architecture is rarely understood in society as an art since the key fundamentals for understanding are missing. "The young generation, however, demonstrates a growing interest, involvement and will to learn more about the environment we all live in. This is supported by various initiatives, social platforms and even mandatory publicity of projects. Often, the emergence of new architecture in sensitive locations such as the old town or the natural environment, generates a lot of debates in society. More and more often we see that society is interested in quality artefacts of architecture, but in many cases does not know what they should be", explains architect 4-V-f representing the professional press. Architectural communication activities are obviously vital in educating society.

Through its works (buildings, cities or activities), architecture materialises cultural growth of society, relationships between its members, institutions and social roles. In the process, architecture can be understood as an element structuring social relations through the configuration of space and acting through its materiality. Architects should be aware that their works have two lives: the first, when they create, design and participate in its construction; and the second, when it is taken over and used by the client, i.e. communities. It can be a profit-making organisation, a private person, an urban community - the scale and profile of the client do no matter. What matters is whether they managed together to achieve a communicatively fruitful result or not. Given a significant gap between the communicating parties, the causality and extent of which has already been discussed in the text, a successful communication between architects and society seems to be likely in the hands of a mediator. This opens up the possibility for one of the players of culture field, i.e. the LCC, to play the role of a mediator in architectural communication supporting and promoting the involvement of both architects and society.

Challenges and problematic issues of cultural and communication activities in architecture referring to the projects supported by the LCC

Established in 2013, the Lithuanian Council for Culture (LCC) acts as the key institution implementing the national cultural policy, administering the Culture Support Fund and analysing cultural and artistic processes in Lithuania. The LCC enables the diverse development and dissemination of culture and art to ensure the

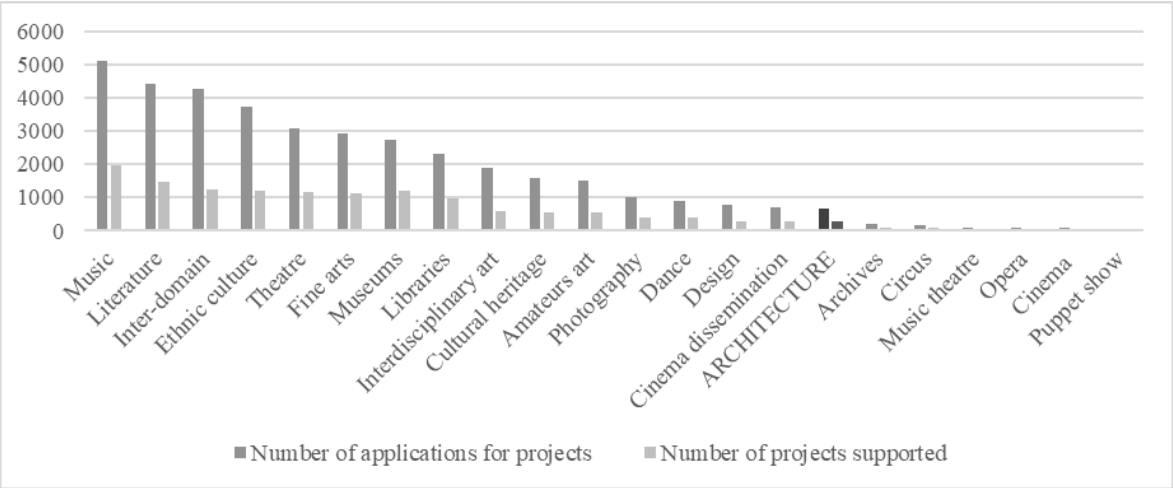

Fig. 1. LCC funding by fields of culture and art in 2014–2020: applications submitted and projects funded [LCC official website [11]]

rational and reasonable use of the allocated funds [13]. Architecture is one of the supported field of arts. The practices of the LCC promote the activities outside the dominant narrow conception of architecture, which focus on the development and dissemination of architecture as a cultural and artistic field. These activities are aimed at opening up to society the backstage of the inherently closed profession of architecture, at increasing communication between architects and society, at educating society and fostering its knowledge through understanding of architecture, thereby having a longsighted vision of increasing the quality of our environment. It should be noted that the targeted funding of architecture by the LCC is limited to the activities not directly related to architectural design works. It is targeted to the unregulated activities that are not subject to the requirements mandatory for recognition of professional qualifications of the regulated profession [10], whereas outputs of activities are not subject to the nationally defined legal, technical and other requirements. The aim of the activities is to ensure architectural education, dissemination and development or to create an architectural product with the long-term value intended to meet the cultural, artistic and educational needs of society, to fulfil the creative initiatives of the developer, and to have a sustainable and balanced impact both on the environment and national image. The activities shall be carried out by professionals with an education, background and experience in architecture or related fields (art criticism, heritage conservation, history, sociology, art, photography, etc.) that is necessary for project implementation. Compared to funding from municipalities, other public institutions, public and private sponsors, the LCC acts as the key and largest supporter of culture-oriented activities in architecture, and most of these activities would not have been implemented without the LCC funding.

According to the LCC website, cultural and artistic activities in architecture field are funded at a few levels. Activities and results of the competition-winning individual creators are supported by the LCC with individual and educational scholarships. Groups of creators in cultural, artistic, academic or other organisations participate in the competitions of projects. Cultural and artistic organisations apply for funding of their activities and creative programme focused on the development of Lithuanian culture or art participating in the competitions of strategic funding for cultural organisations (e.g. the Architecture Foundation) and for artistic organisations (e.g. the Architects' Association of Lithuania). Support of individual architectural activities and events is also available in other competitions organised by the LCC, although these are rather rare or exceptional cases (such as the national showroom at the Venice Architecture Biennale) [14].

The study focuses on the projects in architecture field supported by the LCC as they combine the cultural and communicative activities and initiatives. An LCC supported project in architecture field is defined as a targeted activity or set of activities with a clear objective and tasks, a specified timeframe for implementation and a measurable financial plan. The activities generate a range of cultural services and products aimed at artistic, scientific and interdisciplinary architectural research, at education, social integrity, technology, and experiments. Compared to the projects funded by the LCC in other fields of culture and art, funding for the projects in architecture field is particularly low (Figure 1). The summarised project funding data for 2014–2020 provided by the LCC demonstrates that only cultural and artistic areas such as archives and circus have fewer applications than architecture field, whereas cinema and its dissemination, musical theatre, opera, and puppetry have not been fully

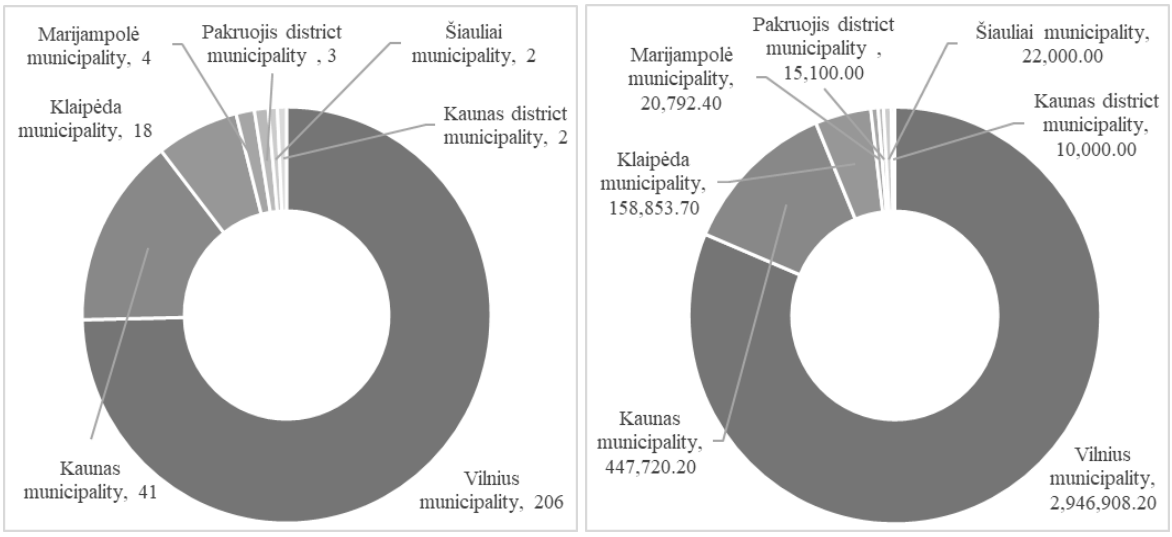

Fig. 2. LCC funding by the municipalities of applicants in 2014–2020: a) by the number of funded projects; b) by the support received for funding [created by authors, LCC official website [15]]

funded during the period analysed [15]. Development of cultural activities in architecture with long-term value is obviously unappealing to the professionals working in architecture or in adjoining fields. Interviewees generally agree that inactivity in applying for LCC projects results from the indifference of the very architects' guild that could be explained by too great involvement in architectural design and by the lack of their responsibility in communicating and educating society.

As for the trends in funding of LCC projects, it should be noted that among the traditional art fields, the LCC has been quite generous in its support of architecture. The summarised project funding data for 2014–2020 provided by the LCC shows that 41 % of all project applications in architecture field submitted in that period (276 from 670) were funded. Only circus (55 %) and dance (46 %) received greater support, whereas funding of project applications in the other traditional fields of art was distributed as follows: fine arts and photography (39 %), theatre and music (38 %), design (36 %) and literature (33 %) [15]. Having in mind the cultural significance and importance of architecture for society, the greater reach by the LCC supported projects and their greater impact on society and culture could be expected only through encouraging professionals in architecture field to make use of the LCC support by developing architectural projects.

Even if a reliable communication mediator is available, the responsibility for communication and public education, and for the unused potential of the LCC falls on professionals in architecture. The inactivity of professionals in architecture in LCC supported activities is not the fault of society, but the indifference inside of the very architects' guild. The fact that the architect is not considered a person with a broad cultural profile able to share and educate society with his or her cultural insights is not just a problem of society. Thus, cultural activities in architecture field are essential for both sides: for the architectural community and for the public.

The portfolio of architectural projects could be characterised by uneven geographical distribution, although its balancing is one of the missions of the LCC. Even taking into account such circumstances as the location of the major architecture events organised in the country, i.e. KAFe in Kaunas, Open House in Vilnius as well as the concentration of universities, research centres, and public organisations in the capital of the country, unevenness of the geographical distribution of architectural projects within the country is stunning both in terms of the assignment of the applicant – the implementing organisation – to the municipality, and of the location of implementation of projects.

According to the summarised data on project funding in 2014–2020 provided by the LCC, as many as 206 projects in architecture field submitted by applicants from Vilnius were financed in this period, whereas the number of submitted projects from other locations was the following: 41 projects from Kaunas, 18 projects from Klaipėda, 4 projects from Marijampolė municipality, 3 projects from Pakruojis district municipality, 2 projects from Šiauliai and 2 projects from Kaunas district municipality [15]. Thus, during the period under consideration, applicants from Vilnius city municipality submitted 74.6 % of all funded projects in architecture field, and the support for these projects amounts to 81.3 % of the total funds allocated to projects in architecture field (Figure 2). The proportion of the funded projects in architecture field submitted by applicants from Vilnius demonstrates an unacceptable concentration of activity generation in the capital. Even in the cases where the successful applicant from Vilnius

municipality is an organisation with activities in other Lithuanian cities as well, the analysis of the funding of specific projects shows its power position, with the support being shared with sites in other cities in a much smaller relative proportion than was promised in the application, as stated by application developer 7-K-f. Comparing the statistics on the funding success of project applications, applications from organisations based in Vilnius city municipality are supported obviously more often than those from organisations based in other municipalities. The frustration and disbelief of local residents in receiving support is vividly explained by an architect from Klaipėda who refused to participate in the study and to be interviewed: "they have to take care of everything themselves, look for sources of funding on their own as there is nothing they could expect from Vilnius".

In general, a tendency to export projects from the scientific and cultural centres towards the periphery is observed, thus taking advantage of the preferential funding for activities in regions. For example, the annual event organised by the *Architect Algimantas Zaviša Support and Charity Foundation* is held in Nida. However, this unique site in Lithuania is only the location of the event, meaningfully associated with Zaviša, long-term chief architect of Neringa. The initiative, content and participants of the event are from the Lithuanian cultural centres of Vilnius, Kaunas and Klaipėda. Another example comes from Lithuanian higher education institutions with architecture degree programmes. For the past five years, the competition of projects in architecture has been marked by field trips to the periphery by students and their mentoring lecturers. Often these projects are low-budget, their return on investment or their real contribution to the cultural environment of the periphery is not checked by the LCC, so their impact on the region remains in question. The fact that regional initiatives are very poorly funded is also demonstrated by the discouraging statistic that most of the municipalities in the districts of Lithuania either do not apply at all or have submitted 1 or 2 applications that have not been funded. A similar situation is apparent in many other areas of culture and art. According to the implementation place indicated in the projects in architecture field funded in 2014–2020, as much as 30.4% of all projects were implemented in Vilnius, 12.3% in Kaunas and 2.9% in Klaipėda. This shows a slightly more balanced distribution as the remaining significant portion of the projects indicated are realised in Lithuania, Europe, etc. It should be considered that the latter broad locations of implementation may both indicate the actual extent of the spread, and be a way of concealing much narrower and more specific location of implementation.

To ensure even geographical distribution, the LCC develops region-specific funding programmes for cultural and artistic activities, enabling them to be disseminated in municipalities far from the capital. Although it is the right way to ensure even development in regions, applications are simply not submitted. The activities to be supported in regions include initiatives and product development in other culture and art fields, but not in architecture field. The low availability of cultural activities in architecture over the regions is neither in line with the strategic funding directions for accessibility and education declared by the LCC, nor in compliance with the great need for architectural education of regional communities.

A special attention should be paid to the problem of the LCC system that can be defined as the dominance of large organisations *versus* the enthusiasm of start-ups. This is a trend observed both in architecture and possibly in other fields since the LCC system of expert evaluation of projects is similar for all fields of art. In Lithuania, two major organisations of architects are operating: Architects' Chamber of Lithuania and Architects' Association of Lithuania. Basically, the organisations are competing in the public space, partially duplicating each other functions and not always responding to the needs of Lithuanian architects, but monopolising the role of communication flagships. Analysis of the statistics of project applications for funding reveals that the most frequently funded projects are the traditional, co-cultural creative and research activities such as book production and publishing, organisation of conferences, creative workshops, exhibitions and lectures. Funding is mostly allocated to large, complex events and to ongoing, established activities organised by other big experienced institutions. It is natural having in mind the experience and knowhow of the applicants and the audiences they attract. On the other hand, non-standard, breakthrough initiatives such as video narratives, out-of-the-box publications, interactive activities, are very rarely rated sufficiently high due to their unusual character and, as a rule, due to the low level of knowhow and experience of young applicants. Generally, the following applicants are supported: large professional and social organisations, universities, publishing houses, i.e. entities with experience, established groups of participants and time-tested ways of operation. This makes it particularly difficult to get funding for young, inexperienced start-ups, which are often the ones to initiate new types of activities as they are side-lined by large, experienced organisations. As application developer 7-K-f notes, "We would like to see the projects that actually implement diversity of views and beliefs, education and training of society and young people, principles of accessibility,

i.e. basically what the strategic guidelines say. The projects that are not driven by fashion trends, by the opinion of one or a few influencers in the public space, the projects that demonstrate respect for history, classical culture and values. Surely, ensuring the mandatory requirement of project quality". Start-ups with the above characteristics, which are seeking to position themselves in the cultural environment, could be able to enter and participate in LCC project activities more quickly along with the large organisations, if a special quota or exemption is provided that require no experience as long as the high artistic and cultural value of the project is maintained.

Furthermore, the LCC does not fund the study process at higher education institutions, but this may be one of the short-sighted limitations of activities. Enriching the study process of young people and future professionals with cultural activities should be supported by the LCC. Interdisciplinary strategies could be delegated to the projects with young people, and the stagnating situation would change gradually. Therefore, new players, i.e. start-ups with little or no experience in architectural design, but willing to assume a mediating role and to be responsible for creative communication in architecture field, should be allowed to take a more active role.

The long-term impact of LCC projects on the quality of the surrounding environment would be based on the fact that all members of society are in some or another way involved in the processes (as developers, customers, participants), use (as residents, users) and evaluation (as observers, activists). Although the target audience of the project activities is twofold, i.e. the public and the professional community of architects, the planning and implementation of project activities is more focused towards the former group. The desired objectives of project activities and their results identified by the interviewees are informing, introducing, educating society as well as developing creativity, innovation, openness and the will to improve (7-K-f) leading to the maturity of society (3-K-m), whereas their exposure indicators are represented respectively by reinforcing the value system of attitudes and changing attitudes through reflective experiences (7-K-f), influence on future processes (3-K-m), stimulated debates and reduced negative tensions between the community and architects (2-K-m). Expecting the projects to generate both the high-quality content and long-term value, respondents see the creation of cultural heritage as the primary mission of the project and the longevity of the results as the value of the project (6-V-m). Thus, the interviewees were critical about following fashion trends, opinions of one or a few influencers acting in the public space due to short-term or limited relevance (7-K-f), as well as about chat platforms due to non-critical feedback and undocumented output (6-V-m). So-called 'paper projects' - fruitless activities that have never reached their final tangible realisation – were highlighted as particularly avoidable (7-K-f).

The impact of projects on society and environment as well as the long-term cultural value of projects is obviously seen as a twofold category. To establish social and environmental impact, it should be measured and demonstrated. The LCC employs a certain system of project impact assessment, where project participants make self-assessment of the project impact against given indicators. Being questionable in terms of reliability and partiality, this assessment system is more existing as a formal and redundant approach rather than as a practical tool giving real results. For example, long-term value is a more relative concept as one project participant gains the experience, while another finds it relevant to add a new book to his/her professional bookshelf.

Conclusions

1. Problems related to the dominance of the abovementioned narrowed concept of architecture, to the lack of cultural communication, and to the modest public knowledge of architecture lead to the devaluation of architecture and, consequently, to the diminishing of the quality, diversity and long-term cultural value of the surrounding environment. Architectural education of society would be the most effective way to address these problems. It is crucial to grow everyday users, politicians, decision-makers, investors, developers, private customers, participants of the construction process, activists, preservers of local heritage, and keepers of traditions able to understand and critically evaluate architecture, thus contributing to formation of a higher quality environment.

An educated person participating in the environment formation processes will aim for a high-quality, harmonious, sustainable, aesthetic architectural environment, which will have an impact both on the development of culture, art and socio-economic relations, will enhance the social relationship and security of the communities, will improve physical and mental health. The knowledge of heritage sites and local identity, and the development of value preferences will contribute to the informal preservation of cultural heritage values. Additional, more diverse education of architecture students will stimulate the need for innovative, out-of-the-box solutions, interdisciplinary cooperation with other professionals and communities. Stronger feedback between designing and researching architects will lead to the examination of the most pressing issues and to more effective collaboration

and dissemination of research results. Continuous professional development will contribute to a more efficient response of architects to changing social, economic and environmental situations, to understanding and applying the principles of more sustainable environment in their daily design tasks, to professional problem solving and managing the challenges of community involvement.

2. In Lithuania, architectural professionals alone are not able to achieve the necessary effective cultural communication and inclusive cooperation between architects and society; professionals from related fields, whose activities are directly related to architecture field, would be helpful for this purpose, and operation of a stable mediator is especially required. The successful communication between society and professionals in architecture possibly is in the hands of a mediator employing players in culture field. Here, the role of a mediator can become both a determining and value-adding factor.

Since 2013, when the LCC had assumed the role of a mediator in architectural communication through the funding of cultural activities in architecture in the form of projects, a range of problems and challenges have become visible. Activities in architecture field are particularly poorly funded due to the low number of applications, thereby the apathy of the architectural guild and the lack of involvement of professionals in related fields. Funded activities are clustered in the big cities and especially in the capital, while activities in regions are more imitative than real. Project funding tenders are won by large, experienced professional and public organisations, universities and publishing houses, whereas for new entrants and start-ups winning turns into a challenge. Generally, funding is allocated to large and complex events, established ongoing, traditional, and conventional co-cultural creative and research activities, rather than out-of-the-box, innovative undertakings. In terms of outputs and outcomes, the impact of projects on society and environment as well as the long-term cultural value are obviously not always obtained as promised and expected.

Recommendations for the LCC

1. In order to increase the cultural significance and importance of architecture for society, architecture practitioners and theoreticians should be encouraged to make the maximum and most effective use of the opportunities offered by the LCC. The most effective way to reach architects active in design would be through Architects' Chamber of Lithuania and Architects' Association of Lithuania, and architectural theoreticians - through higher education institutions. They would be motivated by transparency of evaluation and sharing of best practices. Projects shall include as many players in architecture field as possible to achieve exposure and long-term value of projects as the impact they contain is a multidimensional set. Such practice both provides a better result and builds social connections, gives vitality to architecture field and makes the public aware of architectural processes. To obtain sustainable results in architectural development, the involvement of all the players in architecture field in the project process, where each has his or her own role and responsibilities, leads to both collective and individual responsibility.

2. Activities to be funded should be selected by the potential long-term value of their results and their impact on the public and/or the professional community. This includes the cultural, artistic or scientific quality of the outputs, the durability of the process, product or impact, the extent of dissemination in terms of geography, professional interests, social layers, the penetration of dissemination. etc. One of the safeguards for the quality of activities is the experts' view that only architects and professionals in adjoining field (art criticism, heritage conservation, history, sociology, fine arts) with activities related to architecture,
can be involved in implementation of the activities planned. More attention and control should be given to the intermediate stages that are funded, so that they reach their final realisation, e.g. the publication of a book. A preventive mechanism should be applied since activities that are funded but are not fruitful take away the implementation possibility of fruitful activities from other applicants.

3. The project evaluation criteria should be revised to direct the selection process towards quality, relevance, significance, communication, coherence and expertise of the project and its outcome. In order to balance the geographical distribution, revisions to the list of evaluation criteria and their weight should increase access to support for activities in regions, for ambitious early applicants and for innovative, out-of-the-box undertakings. To avoid potentially low-quality start-ups due to their lack of experience, a quota of such projects and/or a limit on the funds to be allocated are recommended.

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Kopsavilkums. Publikācijas mērķis ir izcelt kultūras un komunikācijas aktivitāšu nepieciešamību, īpatnības un problemātiku arhitektūras jomā, izmantojot Lietuvas Kultūras padomes (LCC) finansēto arhitektūras projektu gadījuma izpēti. Problēmu apzināšana nekomerciālo iniciatīvu atbalstīšanā arhitektūrā no 2014. līdz 2020. gadam ir konkrētā pētījuma apjoms, kas izstrādāts, izmantojot analītiski aprakstošu pieeju. Izpēte aptver zinātnisko un profesionālo literatūru, juridiskos dokumentus, profesionālo arhitektu organizāciju ieteikumus, informāciju no LCC un daļēji strukturētas intervijas ar 7 ekspertiem.

Lai palielinātu arhitektūras kultūras nozīmi sabiedrībā, arhitektūras praktiķi un teorētiķi jāmudina maksimāli efektīvi izmantot LCC piedāvātās iespējas. Finansējamās darbības būtu jāizvēlas, ņemot vērā to rezultātu iespējamo ilgtermiņa vērtību un to ietekmi uz sabiedrību un/vai profesionālo kopienu. Būtu nepieciešams palielināt piekļuvi atbalstam reģionos, pārskatīt iepriekš iesniegtos ambiciozos pieteikumus, attīstot turmpāk inovatīvus risinājumus un pieejas.

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Multicriteria assessment of landscape architecture projects: the sustainability perspective

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Abstract. Cities are implementing numerous projects for improving their urban landscapes. The quality of planned landscape interventions is critical for the users and that depends on proper assessment of the projects. After theoretical and empirical research, the paper proposes the framework for quality assessment of landscape architecture projects in relation to sustainability principles. By using the set of pre-determined criteria and relevant indicators the paper offers triple-level multicriteria decision-making tool for assessing the projects aiming at refurbishing, regenerating or conserving the existing parks and gardens, urban open spaces, cultural landscapes and urban infrastructure landscapes by the professional experts. The results of assessing the urban open space refurbishment projects have demonstrated that the proposed solution is fit for setting the participatory quality assessment platform with involvement of stakeholders for comparing the proposals, identifying their advances and shortages, also figuring out the dominating design trends. The results suggest that each phase of project development has a significant impact on the quality of the process and the overall assessment result. Authors and clients should pay special attention to landscape perception values.

Keywords: landscape architecture; projects, quality assessment; criteria; indicators

Introduction

Responding to the global environmental challenges and high public expectations, cities are implementing numerous projects for modifying their urban landscapes and investing immense public resource. Quality of the planned landscape interventions is critical for the citizens and other users and that depends on proper analysis of the possible options and selection of the best proposals. For this reason, cities are actively procuring projects for landscape modifications by organising open or invited contests and variety of public purchase procedures. Professional community is also presenting their work to public in exhibitions and publications where the best proposals receive prizes and awards. Organisers in the process of contests, procurement, awards and other professional evaluation use different methods and varying sets of criteria, which then gives a hint for further professional activities. Therefore, it is important to use a balanced comprehensive method for assessing the quality of landscape architecture projects, especially minding the current sustainability requirements.

By performing thorough analysis of the most recent literature, numerous design cases and variety of implementation practices, by building up on previous research by the author, the paper aims to present a comprehensive solution for aesthetic, environmental, socio-economic and operational assessment of landscape architecture projects. This paper discloses the findings of an experimental research illustrating how to apply in practice and pilot-test the methodology of quality assessment of landscape architecture projects based on sustainable development principles.

The major concerns of recent landscape implementations relate to the loss of biodiversity in cities, urban heat islands appearing because of abundant sealed surfaces, the quality of air, soil and water, urban noise and may other impacts of speedy and short sight urbanisation. For this reason, we have taken environmental, socio-economic and operational aspects as a framework for quality measure for landscape architecture projects. We understand landscape as a multi-faceted self-organised system that can be static, self-supporting, selective, protective, contextual, self-reproducing, conscious, and other [1].

Aesthetic value is essential quality feature of landscape architecture, and in a wide sense, it includes individual visual perception, spectator's subjective experience and other specifics and therefore is a fluctuating category by its nature in time, in space and in context. As regard to sustainability, vernacular and traditional design stands out as the inspiration for sustainable design form and content [2].

Multicriteria decision-making analysis is used when the final decision should be made based on several criteria with multiple indicators, also when the list of options has to be narrowed. In the case of landscape architecture projects, the usual application could be selecting one proposal of many in the process of a contest or procurement for further development and implementation.

Literature review

Re-examining the understanding of urban policies on international and national scales requires more than reviewing the procedures of dealing with the variety of urban phenomena that we face but to rethink the way we see the city and in this context the philosophy of approach to urban issues becomes a priority goal [3]. All built environment projects have to mind multiple quality criteria and make right decision to meet a task delivered by client. Especially, the projects dealing with the natural and built environment have to account, analyse, conceptualise, develop and technically deliver the proposals that are optimally addressing the multiple problems of the place. Therefore, we have attentively analysed the multiple criteria decision-making (MCDM) methodology as regard to landscape planning, design and management tasks in particular. Analytic Hierarchy Process (AHP and ANP) turns to be one of the most suitable methods and the efficient tool for prioritising multiple quality criteria of urban landscape [4].

AHP and ANP methods are designed to evaluate factors using a pairwise comparison when one criterion is more dominant over another [5]. The AHP method can solve difficult-to-define problems that use experience and intuition (i.e., expert's evaluation) next to mathematical calculations [6]. Researchers underline the AHP method conveys the human interpretive thinking process [7] better than the logical sequence in Design thinking. This is why the AHP method developed by the American scientist T. Saaty [8] is used. The AHP method is suitable for research and evaluation of various types of applied art objects, building maintenance process [9] or for selecting the best landscape architecture design. The AHP approach provides not only the opportunity to find the best evaluation solution, but also to quantify the prioritization of ranking tools. In the AHP method, priorities are set using the pairwise comparison method, which has a certain relative importance or a hierarchical structure of the most valuable elements. The AHP methodological tool relies more on intuition and expertise than on objectivity in prioritizing decisions [10]. In this study, the method is chosen by solving the task of selecting the design solutions of the presented landscape architecture projects, which are the most favorable for the needs of both the society and the city municipality. The AHP approach sets the structure of the model by presenting the problem in a hierarchical structure, provides comparison of criteria and (or) alternatives, finally it gives prioritization of criteria and (or) alternatives.

Research discloses that MCDM is efficiently used to assess sustainability of buildings, and in this process, it uses the conventional sustainability criteria as site features and transport, energy and materials, waste and pollution, and other, depending on the applied assessment scheme. Combining the existing MCDM methods authors introduce a Proportional Judgement Scale for pairwise comparisons of different assessment criteria [11]. Engaging stakeholders into the assessment process is the global trend in sustainability assessment, even though these schemes require definite professional background. Dale et al. underlines importance of the coordinated process for engaging stakeholders, starting with scope and objectives, setting and prioritising the indicators that alert pending concerns, setting the target, obtaining indicator values, drafting the trends and finally developing good practices [12]. MCDM methods and their combinations are used to assess different aspects of landscape performance. While assessing the safety of urban public parks AHP method can efficiently rank the factors of urban parks safety [13] by using the crime prevention through environmental design tools. Another application of MCDM for landscape assessment employs AHP method that is independent from current building's sustainability rating schemes [14]. The method allowed for determining importance of assessment factors with Site context, Soil and vegetation, and Maintenance as the most important ones. The question is raised weather AHP assessment is more fit for evaluating landscape architecture projects than green building rating systems as BREEAM, LEED and others that are creatd to assess buildings. While aiming to evaluate the rationality of urban river landscape design project by AHP tool researchers identify numerous landscape elements (24 elements) without structuring them to the bigger criteria groups and subsequent indicators and found it suitable for measuring their performance [15]. Researchers use Analytic Network Process (ANP) method in cases when a feedback effect exist between multicriteria factors [16]. In such case, ANP is frequently used method to resolve multi-index comprehensive evaluation problems. Literature review indicates that quality assessment of landscape architecture projects is multi-criteria by nature, and pairwise comparisons of criteria and relevant indicators may be used along with the set of pre-determined criteria and assigned indicators.

Methodology

We use the set of pre-determined criteria and indicators for quality assessment landscape architecture projects developed in the recent research [17]. In order to have a balanced initial approach to aesthetic, environmental, socio-economic and operational assessment the pre-determined set of criteria and their indicators was upgraded: the number of indicators was equalised and social and economic criteria were split to

TABLE 1
Composition of expert's group for multicriteria assessment of landscape architecture projects [Source: by the authors]

No.	Areas of landscape architect's professional activity	Experts involved
1	Designing parks and gardens	Landscape architect
2	Designing urban open spaces	Landscape architect, urban planner, sustainability specialist
3	Planning cultural landscape	Landscape architect, urban planner, conservation specialist
4	Designing landscape of infrastructure	Landscape architect, urban planner
5	Team member in building's design	Landscape architect, urban planner, architect

separate groups. Human memory has a limited capacity to process complicated information and keep in mind multiple responses [18], therefore each criterion initially was assigned an equal number of indicators.

As prosperous, healthy and equitable society is the general goal of all strategies and policies towards sustainable development, the social aspect of quality assessment is central and it is shielded by environmental (biosphere) aspects of sustainability, on one hand, and it has an economic kernel with relevant economic development issues [19] (Fig. 1). In this context, we need to define the wider frame of research needed to develop the methods and processes to assess urban accessibility, especially for the elderly citizens, as an important aspect of social sustainability of modern cities and measure the planned interventions by using the information technology tools [20].

In order to demonstrate the complex quality assessment of landscape architecture project we will use the example of renovation project contest for Vokiečių Street in Vilnius City Old Town. The previously created set of criteria and relevant indicators represent the quality features of different kinds of landscape architecture project, from parks and gardens, urban open space, cultural landscape and infrastructure landscape, as well as for a supporting role in building's design projects.

We may admit several scenarios for quality assessment of landscape architecture projects: quality assessment aiming to determine quality degree (low to high), assessing against the baseline scenario project, comparison of several projects in case of a contest, and rating several proposals in the process of public procurement. In this paper, we test the assessment for the quality degree of landscape architecture projects submitted for an open design contest. The quality of projects whose assessment result is above 80% will be entitled exclusive, from

Fig. 1. Economic, social and biosphere aspects of sustainability [Stockholm 2020]

65 % to 80% – very good, from 45% to 60% – good, from 30% to 45% – medium, and below 30% – low.

The composition of expert's group plays an important role in the whole assessment process. It depends on the site and the nature of the intervention, type, phase and other specific features of the process and usually comprises professionals and academics, landscape architects and urbanists including building architects, depending on the local education system. Researchers debate about the contradictive nature of aesthetics and sustainability, arguing that these two are of the opposite nature. If we draw the parallel with landscape development, then the aspects of anamnesis, flow, space sequencing and context may be the matching points between the quality of landscape architecture and its sustainability [21].

Depending on that, expert's group should preferably include professionals bearing all competences needed for assessing the particular landscape architecture project. In this case, experts represent the full scope of expertise and competences (Tab. 1). As all experts were involved in assessment of all project entries we expect that they have assessed in all aspects and perspectives as drafted by Stauskis, including aesthetics and sustainability, urban coherence and ecology and other specific fields of urban landscape quality [17]. Five experts assessed the criteria, the indicators and the submissions by testing the created assessment tool. All involved experts are practicing in landscape architecture planning or design, two of them are teaching and researching. For this study, experts contributed free, but they were provided with transport and office service.

The AHP rating scale for the matrix was ranging from one to 9 where 1 is Equal Importance, 3 – Moderate importance, 5 – Strong importance, 7 – Very strong importance, 9 – Extreme importance (2,4,6,8 values are intermediate). The assessment was at first performed on the criteria level and then – on the indicator's level. On the first level,

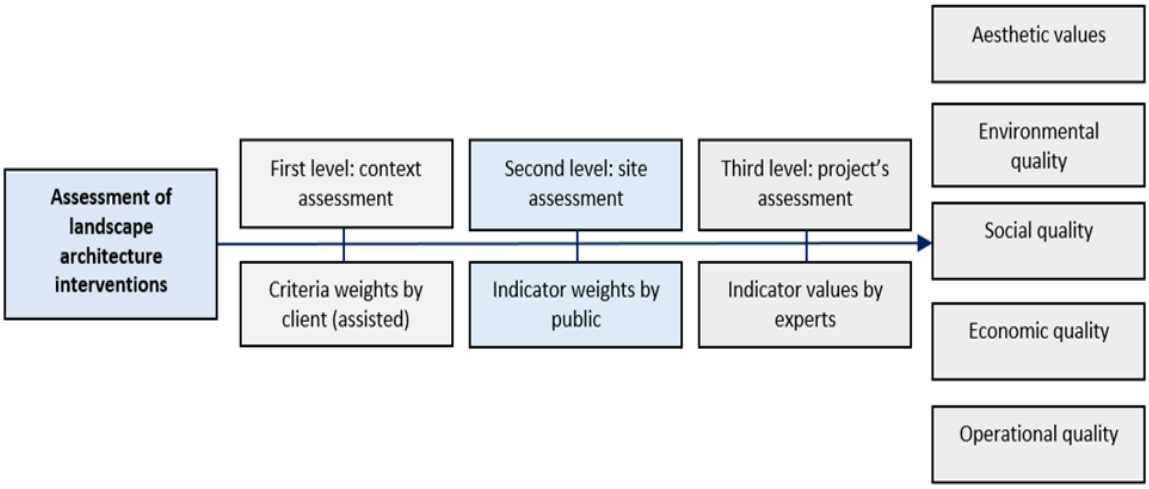

Fig. 2. Multiple assessment scales addressing the context, the site and the proposals [created by authors]

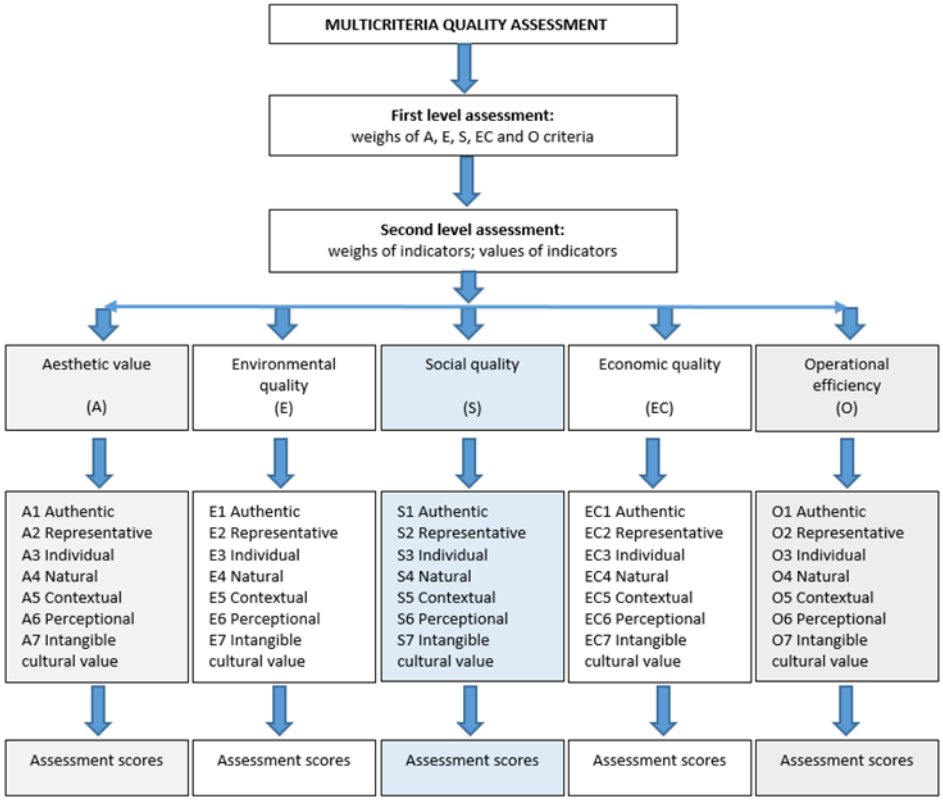

Fig. 3. Triple-level multicriteria quality assessment process [created by authors]

each expert determined the weighs for the following quality criteria as relevant for the concrete contest site and programme: aesthetic value, environmental quality, social quality, economic quality and operational efficiency, that were named respectively as A, E, S, EC and O (Fig. 2). When applied in real life situation, the client will perform this assessment level by expressing his expectations and vision of the planned project. On the second level, the experts determined the weighs for all indicators of the assessed criteria. In real life situation, community representatives will perform this assessment by discussing the goal, the use and the performance of the planned landscape intervention. On a tertiary level, five experts gave scores to each project entry against each indicator. The weighs of the first level represent the surrounding and proximal urban and natural context specifics and nature of the project arising from its aim. The second level weighs represent site specifics, and the scores of the third level represent quality of the submitted project entries. By submitting the assessment scores, the

Fig. 4. The aerial photographs of Vilnius Old Town and Vokiečių Street 2009 (a), 1944 (b) [Vokiečių 2015

experts have reported the extent to which the assessed project addresses each of the aesthetic, environmental, social, economic and operational qualities as displayed by relevant indicators (Fig. 2, Fig. 3). The triple-layer structure allows using the proposed method for assessing landscape interventions in the planning, design and management aspects.

The authors provided the automated Analytic Hierarchy Process operation system (AHP OS) for assessing the priority weights of the selected criteria and indicators on the first and the second assessment levels, Fig. 2 [22]. The experts performed tertiary level assessment by giving numeric scores to each contest project.

Fig. 5. Process for assessing the quality of landscape architecture projects [created by authors]

The site, the task and the projects

Eighteen projects for refurbishment of Vokiečių Street in Vilnius City are analysed by the proposed method. We selected this project's contest as its task it covers refurbishment of infrastructure (two streets), it is an urban open space, it includes park elements, in addition, it lays in a protected cultural area of Vilnius Old Town (Fig. 4). As presented in the task programme [23], some roles of this place are more evident (a street) than the others (a park), but the task includes drafting the future vision for this site as an integral part of Vilnius Old Town. The site blends the typologies of urban open space, linear greenway and infrastructure with definite traits of cultural landscape as it is within a protected heritage area.

Prior to the open contest, the municipality planning company has developed several proposals for the refurbishment of Vokiečių Street, but because of very active public debate and high expectations of the citizens the international open contest was organised by Vilnius City Municipality and the Lithuanian Association of Architects in 2020 [24]. Eighteen entries were submitted, and the projects proposed different pathways towards the refurbishment of this urban open space. The international jury has elected three winning projects, and, as it came from the public announcement, it was stated that none of them has fully responded to the raised issues. In the context of this research, the main question is about the applicability of the methodology for the assessment and ranking of the proposals as regard to the programme of the contest, and local regulation. The secondary goal is to check the methodology on ability to figure out the general trends and gaps of current landscape design. The tertiary goal is to inform the landscape architect's continuous professional development process to deepen knowledge and skills in the identified gap areas.

After the Second World War, following the drastically destructive urban plan drafted by the Soviets a wide motorway for connecting Vilnius City and Minsk, the capital of Belarus, was planned to cut through the medieval old town. The plan was to demolish many urban blocks and valuable architectural monuments to empty the space for the "needed motorway", luckily, the process stopped in 1960 after retreat of soviet dictator. Still as a result, the space of medieval Vokiečių Street was drastically widened from 8–10 m to 40–50 m by demolishing several urban blocks on the North East side (Fig. 4).

TABLE 2

Results of the criteria and indicator weighing by the experts [created by authors]

Phase	**A** weighing the criteria %					**B** weighing the indicators %	**C** scores for indicators
Expert	A	E	S	EC	O		
Expert 1 Landscape architect	25,5	28,0	16,6	16,6	13,3	7 indicators	For all 35 indicators
Expert 2 Landscape architect	28,3	25,4	17,1	14,2	15,0	7 indicators	For all 35 indicators
Expert 3 Landscape architect	26,1	30,3	16,7	16,7	10,2	7 indicators	For all 35 indicators
Expert 4 Architect, urban designer	34,4	24,4	15,8	15,8	9,6	7 indicators	For all 35 indicators
Expert 5 Architect	37,0	25,0	14,1	14,1	9,8	7 indicators	For all 35 indicators
Result:	**30,3**	**26,6**	**16,1**	**15,5**	**11,5**	7 indicators	
A- aesthetic; E – environmental; S – social; EC – economic; O – operational.							

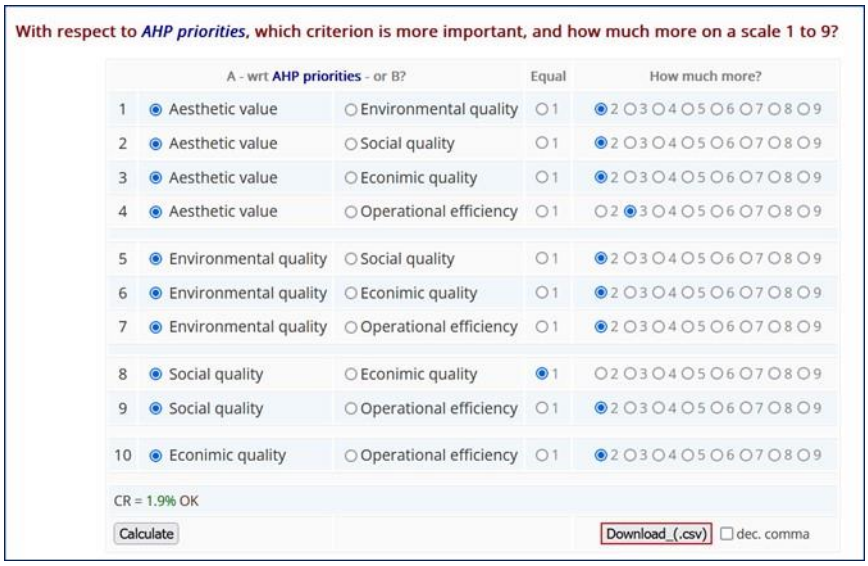

Fig. 6. Pairs of criteria comparison [as example by Expert 4]

After collecting the pool of indicators for environmental, socio-economic qualities and aesthetical values in the operation context, we structure them into five criteria groups (Fig. 3). The importance of the indicators should be determined, because project aim, location, type, lifespan and other specific features are usually different. For this reason, we create the weighing tool to give priority to the most important ones, and as given above, the AHP method is used in a subsequent process (Fig. 5)

Results and Discussion

By extracting the averages from the first level and the second-level assessment data, we have obtained the criteria and indicator priority weighs (Tab. 2). The sequence of the first and the second-level assessment is illustrated on the example of the results provided by Expert 4 (Fig. 6, 7, 8, 9, 10).

We have checked if the property is transitive by the performed consistency ratio (CR) check. Literature recommends that within 10 % the CR is acceptable [22], and in all tested cases CR is within the acceptable 2%–6,1% margin. Therefore, we consider all assessment scores as valid. In order to analyse the average assessment results of all projects in aspect of the selected criteria we have obtained the average assessment scores by five experts for all projects. The professional experience of each expert indicated (Tab. 3 and Fig. 10 a) played certain role in the assessment results. The expert architect with longer professional experience has assigned the lowest average score, and the expert architect with shorter professional experience has assigned the highest average score.

Priorities

These are the resulting weights for the criteria based on your pairwise comparisons:

Cat		Priority	Rank	(+)	(-)
1	Aesthetic value	34.4%	1	7.8%	7.8%
2	Environmental quality	24.4%	2	6.6%	6.6%
3	Social quality	15.8%	3	2.6%	2.6%
4	Econimic quality	15.8%	3	2.6%	2.6%
5	Operational efficiency	9.6%	5	2.0%	2.0%

Number of comparisons = 10
Consistency Ratio CR = 1.9%

Decision Matrix

The resulting weights are based on the principal eigenvector of the decision matrix:

	1	2	3	4	5
1	1	2.00	2.00	2.00	3.00
2	0.50	1	2.00	2.00	2.00
3	0.50	0.50	1	1.00	2.00
4	0.50	0.50	1.00	1	2.00
5	0.33	0.50	0.50	0.50	1

Principal eigen value = 5.088
Eigenvector solution: 4 iterations, delta = 1.3E-8

Fig. 7. The first-level priority calculation results and discriminant matrix data [as example by Expert 4]

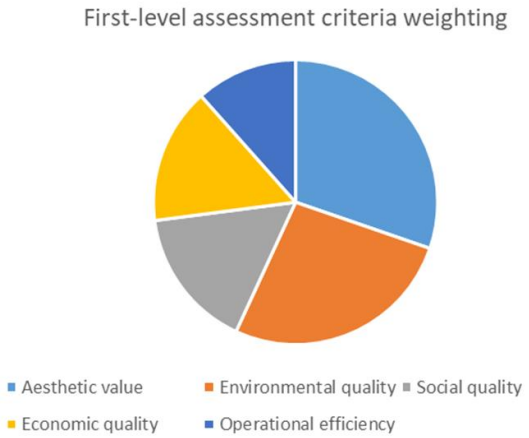

Fig. 8. First-level assessment criteria priority weights by all experts [created by authors]

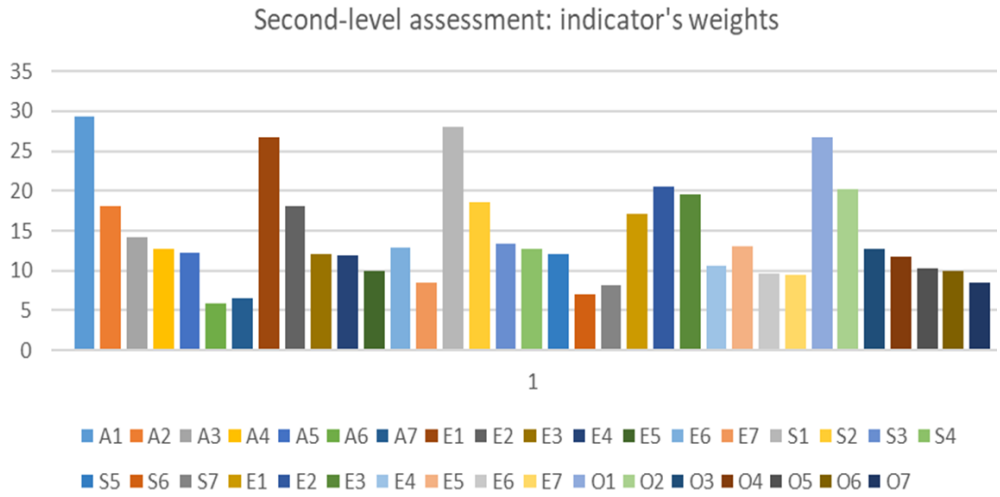

Fig. 9. Second-level assessment of aesthetic indicators priority weighs by all experts [created by authors]

The results of assessing each landscape architecture project from the perspective of sustainable development indicate different degree of achieved quality in aesthetic, environmental, social – economic and operational aspects. Analysis of the average assessment scores show that the average quality of all assessed projects was highest in the social aspect (Fig. 10 a) and lowest – in the operational aspect (Fig. 10 b). Aesthetic value, environmental and economic quality were assessed on the average levels. The overall average of five assessment criteria is 32,29 % (Fig. 10 b) which is "satisfactory" quality level following the assessment grades on Tab. 4.

TABLE 3

Project assessment results by the experts [without criteria weights]

Expert	Aesthetic	Environm	Social	Economy	Operation	Average	In practice
Architect	6,41	6,42	6,67	6,85	7,04	**6,68**	<20
LA	5,04	5,42	5,66	6,21	5,39	5,54	**>40**
LA	6,72	6,15	7,25	6,67	6,26	6,61	<20
Architect	3,49	3,24	3,87	3,81	3,46	**3,57**	**>40**
LA	5,08	5,14	5,91	4,85	2,03	4,60	<20
Average	5,35	5,28	**5,87**	5,68	**4,83**	5,40	
LA - landscape architect							

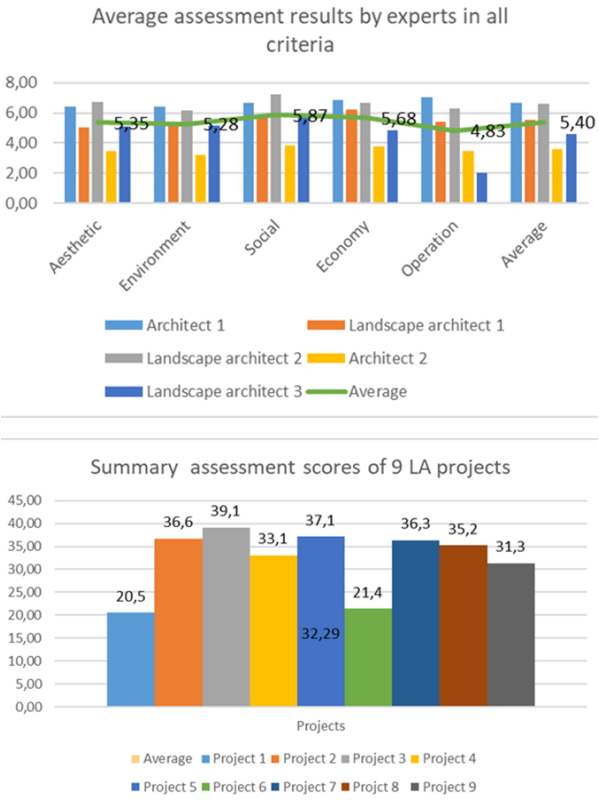

Fig. 10. Average assessment results in all criteria by different experts (a); Summary assessment scores of 9 selected landscape architecture projects (b)

TABLE 4

The standard and the assessed project's quality level [created by authors]

Assessment degree	Standard thresholds	Assessed projects
Low	< 30 %	Projects 1; 6;
Satisfactory	30 % – 40 %	Projects 2; 3; 4; 5; 7; 8; 9
Good	40 % – 55 %	-
High	55 % – 70 %	-
Very high	70 % – 85 %	-
Exclusive	> 85%	-

The results show that regular landscape architecture projects prepared following the standard contest programme by landscape architects without special qualification in sustainability can hardly compete for high quality levels. In order to achieve high, very high and exclusive quality levels (55% onwards) the contest programme and the specific tasks should incorporate the sustainable development quality goals from the very initial phase of its development. Through intermediate assessment of a preliminary design, through public consultation and legal quality check the project should be improved as to advance its artistic value, environmental, socio-economic and operational qualities to the highest level. Certainly, each project should select the quality goals that it is going to pursue regarding the site specifics, needs of the users, the strategic development goals that should be a part of high-standard task programme for any type of local, regional or international landscape architecture contest.

As we see from the assessment results on Fig. 10 b, all reviewed projects offered their way for solving many environmental challenges: protecting existing trees and designing new ones, reduce impermeable pavement, respecting the existing and restoring the erased relief features. In social aspect, authors addressed numerous issues important to local community: recreation, safe and comfortable mobility, and totally rejecting any memorialisation offers. The reviewed projects pay small attention if any to operation and management constrains and the related costs. All reviewed project paid great attention to creating new aesthetic value and made use of the existing cultural heritage and its value. Minimalistic design trend is prevailing, but some proposals employ decorative, restorative, even eclectic design. Nevertheless, all proposals tried integrating multiple cultural layers and blend landscape with urbanism. Reasoning on operational efficiency is essentially missing in all projects as authors fail to address management of the designed facilities even less than formally required. We may summarise that design by the authors of the analysed proposals has good aesthetic quality but sustainability aspects are hard to find in any form. Results demonstrate that the authors clearly miss numerous sustainability-oriented applications as renewable energy, local materials, waste and pollution management, SUDS, SUMP and others. Even more, the analysed proposals differ quite a lot from requirements for landscape architecture projects that we outlined in the reviewed research where sustainability-oriented goals and concrete solutions dominate over the conventional technogenic functionality. For this reason, the quality assessment framework that we present hereby is useful for practicing landscape architects as a practical guide to achieve higher quality of design especially in sustainability perspective.

By looking on the results from human motivation perspective, we see that authors often overestimate physical elements of environment in design because of the high potential to impress and motivate people, and perception variables as openness, smoothness and locomotion, are underestimated. Therefore, landscape perception is a critical component in landscape architecture design and authors should take it as priority for any landscape intervention.

Conclusions

The performed research brings more transparency to the process of project's quality assessment to facilitate professional discussions and public debates. It can improve quality of the landscape architecture projects through continuous professional development schemes. Landscape architects shall attentively treat the high degree of motivation brought by the perception variables integrating it with sustainable of performed tasks for designing new or refurbishing the existing landscape.

Three-step cycle of project's quality assessment illustrates that in spite of the presented list of indicators, in each case assessor has to set their priority and individual weight as to reflect on the specific goal, site, context and other project variables.

Acceptance by the public is a key for measuring quality of any project, and in this case citizens had an opportunity to vote for the best project [25], unfortunately their opinion was not taken into consideration when the winners of the contest for the analysed site were announced. The presented assessment method and tools may be used to make the landscape architecture project's contests more comprehensive for all stakeholders, including the client – municipality, the public – citizens and the specialists. In our case, selection of the jury differed from the preferences of the citizens, whereas application of the presented system would allow matching this different preferences and adding coherence to the contest process and more transparency to its results.

Different stakeholders can use this tool: firstly, the clients – public, private, local(municipalities) or central (agencies, ministries) governments – who commission the project; second, the public non-for-profit institutions and associations willing to assess the quality of the presented proposals in the framework of efficient public participation. In this case, it can work as an alternative for the different methods or conditions used by the client. Third, the contest or tender assessors can use it for entries assessment as a supporting tool next to their professional experience and subjective opinion.

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Kopsavilkums. Pilsētas īsteno daudzus projektus savu pilsētu ainavu uzlabošanai. Plānoto ainavu iejaukšanos kvalitāte ir kritiska lietotājiem, un tas ir atkarīgs no projektu pareizas novērtēšanas. Pēc teorētiskās un empīriskās izpētes darbā tiek piedāvāts ietvars ainavu arhitektūras projektu kvalitātes novērtēšanai saistībā ar ilgtspējības principiem. Izmantojot iepriekš noteiktu kritēriju kopumu un atbilstošos rādītājus, darbs piedāvā trīs līmeņu daudzkritēriju lēmumu pieņemšanas rīku, lai novērtētu projektus, kuru mērķis ir atjaunot, atjaunot vai saglabāt esošos parkus un dārzus, pilsētas atklātās vietas, kultūrainavas un pilsētas infrastruktūras ainavas. Rezultāti liecina, ka katrs projekta izstrādes posms būtiski ietekmē procesa kvalitāti un kopējo novērtējuma rezultātu. Autoriem un pasūtītajiem īpaša uzmanība jāpievērš ainavas uztveres vērtībām.

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Technology support in exploring and identifying valuable elements of Kuldīga and Sēlpils Castles

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Abstract. An upstanding archaeology study is an analytical study that involves a visual inspection of the site, with measurements and probing for various features. The information is compared to the visual and historical documentation relating to the site. Compiling the data obtained from historical sources, morphological materials, and stratigraphic probing, an integrated analysis of the tectonic and formal aspects of the site can be conducted. The research carried out at the site makes it possible to fill in gaps in archival materials and to provide additional details of lost historical architecture, its location, and the processes of building and rebuilding.

An architectural artistic study is conducted to determine the features of cultural, historical, and artistic value in the historic buildings. This is followed by a reasoned decision on the future development, status, and conservation options for the site.

Keywords: standing archaeology probing, brick construction technology, artefacts, georeferenced data, airborne laser scanning

Introduction

Upstanding archaeology as a method for researching historical sites was developed in late 19th century on the basis of archaeological research done as part of the archaeological excavations organised by the German Archaeological Institute in the East. In Latvia, this approach dates back to the 1950/1960's, when architects Gunārs Jansons, Jurijs Vasiļjevs, Gunārs Zirnis, and Gunārs Erdmanis carried out research of sites that were to be restored.

In 1982, architect Pēteris Blūms set up an upstanding archaeology group. The research methodology has not yet been unified and the definition of its theoretical basis is fragmentary. Research, therefore, continues at the scientific level, seeking answers to important research questions at the archaeological, architectural, and artistic levels. The same applies to the study of the outdoor spaces (path networks in parks, small architectural forms, etc.).

Materials and Methods

Upstanding archaeology (German*: Bauforschung)* as the main form of understanding and documenting the built environment, is used for researching above-ground on cultural and historical sites. In Latvia's recent history, it began in the 1950's [8], and saw its rise in the last quarter of the 20th century. Today, in parallel with traditional research methods, upstanding archaeology is increasingly reaping the benefits of modern technology. Thus, upstanding archaeology increasingly transitions away from probing and physical interventions in the site, and towards investigating, analysing, and compiling studies done previously. The sets of data previously collected makes it possible to draw new conclusions on their basis.

Such new findings, for example about the technology of brick construction, or explanations pertaining to certain items of fashion, resulted from the analysis of the artefacts discovered during the long-term archaeological excavations in Cēsis Castle [4]. As the instrumental recording methods improve, such research could distance itself even more from the historic building itself in the future. In castle ruins, this is already done in otherwise difficult-to-survey and even dangerous sections. For example, the instrumental survey of the south tower of the Alūksne Castle ruins made it possible to identify the locations of the openings in the lost upper floor [5]. If a detailed spatial survey results in a virtual equivalent of the historic site, research can possibly be conducted remotely via the associated database. This type of data analysis is possibly the future of upstanding archaeology, and, perhaps, even the future of all research in the world.

In addition to above-ground sites, upstanding archaeology methodology can also be used to identify structures below the ground. It was, for example, used as the basis for a theoretical reconstruction of the lost Kuldīga medieval castle spaces, offering various modern options for their interpretation and presentation [3]. The spatial data were obtained using remote sensing, with the extraction of information, measurements, analysis,

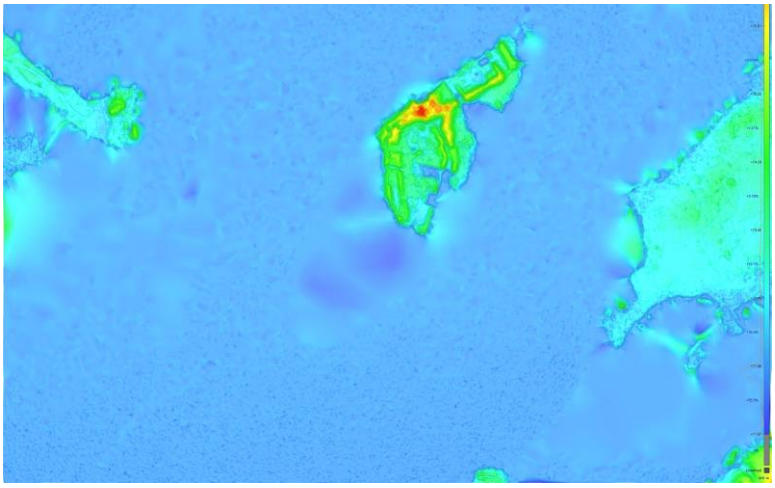

Fig. 1. Elevation map of the Sēlpils hillfort
[Sēlpils castle development sketch by the author]

Fig. 2. Aerial photograph of the current situation at the Selpils hillfort [photo by author, 2022]

and visualisation through images obtained using a contactless method.

By compiling existing studies and analysing terrain, it is also possible to identify elements of structures preserved below the ground, as well as possible areas that can undergo archaeological excavations. Data about the area of the archaeological site are provided via the satellite images available on the website of the Latvian Geospatial Information Agency, made in the visible and in the infrared spectrum [2]. The latter offer particularly contrasts views of green areas and the existing footpath networks, e.g. the Venta river bank becomes clearly visible in the terrain of Kuldīga.

The infrared spectrum map also clearly shows the only vaulted space preserved above ground (behind the Bangerts restaurant). Unfortunately, most of the ruins sites are overgrown, and surface terrain features cannot be discerned in these images.

In addition to visible-spectrum images, the point cloud generated as part of the airborne light detection and ranging (LIDAR) process is available.

These spatially georeferenced data can be used for surface terrain modelling and analysed in a similar way to orthophotographic maps.

Two types of digital datasets are available: a surface and terrain model, originally designed for flood modelling, but currently also used in archaeological remote sensing [7].

- The surface model, similar to orthophotographs, shows the volumes of the existing buildings and tree canopies, so it is not too important for researching castle sites.

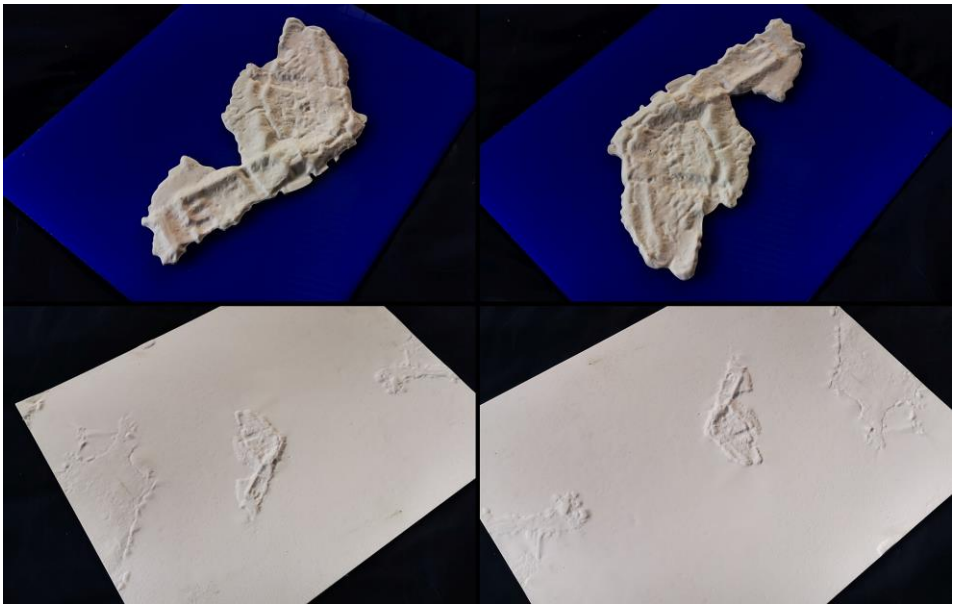

Fig. 3. Spatial model of castle ruins. Tactile visualisation of surface terrain. [Sēlpils castle development sketch by the author]

- The terrain model clearly shows uneven locations within the site, making it possible to identify structures that have survived below ground.

At the Kuldīga Castle site, there is the elevation of the vaulted cellar, and the rampart of the Kuldīga Castle fortifications in the south and west. The southwest bastion, the castle moat and the north side of the star sconce. Surface elevation data make it possible to reasonably accurately determine the spatial layout of the lost fortifications. The terrain model allows, based on upstanding archaeology data, determining with more details the expected trajectory of the perimeter wall, which is likely to have followed the still-visible terrain, rather than crossing it obliquely, as it was inferred from a small outcrop of the foundation in the north western part.

Sēlpils Castle research materials

Sēlpils Castle is a national archaeological site, protection number 940 'Sēlpils hillfort and medieval castle'. Since 1965, it has been an island in the reservoir of the Pļaviņas HPP. The island is near the left bank of the Daugava, opposite the Sēlpils Lutheran Church. Once the reservoir was filled with water, the upper part of the hillfort remained above it. Depending on the water level in the Daugava, the island is up to five metres above the water, and can reach 150 metres in length. The island can be accessed by boat, or viewed from the bank of the Daugava. In 1705, after the explosions, the Sēlpils Castle was deemed unsuitable for residential and military purposes, and was abandoned. Over the following centuries, the walls of the castle ruins were affected by precipitation and frost, eroding and collapsing in ever greater amounts. An analysis of the LIDAR surface model of Sēlpils Castle produced an elevation map that shows features of masonry structures both above and below ground. The main survey method for the Sēlpils hillfort was the matching of historical visual materials with spatial surface data from the model. At the same time, previous archaeological and historical research was reviewed. By virtually simulating different lighting conditions (raking light, hillshade), it is possible to highlight the features of the terrain in a surface model, similarly to a real plane, making it possible to notice irregularities in the surface — such as depressions and elevations. Based on the terrain features and historical images, a spatial theoretical reconstruction model of the site is created. It shows the spatial structure of the mediaeval castle, with the inner castle on the south side of the former hillfort, and on the north side, the castle courtyard. Both the parts of the castle are surrounded by a defensive stone wall, built following the edge of the elevations in the terrain. The model is complemented by results of upstanding archaeology studies: inside the perimeter wall, the inner castle and the castle courtyard, the former wooden and masonry buildings [1]. The entrance to the inner castle was located on the eastern side of the castle site, next to a square tower whose foundations were revealed during excavations in the 1960's. The model also includes a section of the eastern inner castle perimeter wall still visible above the ground to a significant extent, as well as individual parts of masonry structure in the western and northern parts. Based on the existing fragments of well masonry, a well is shown in the depictions of the middle part of the inner castle.

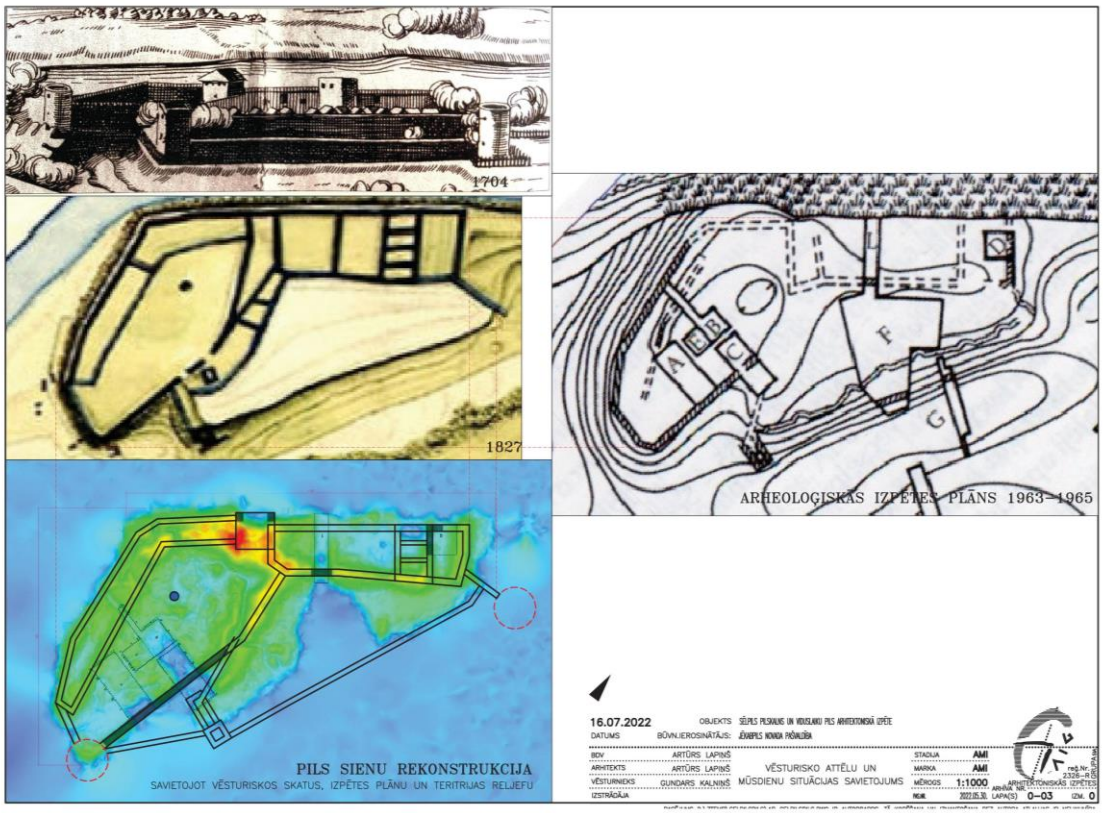

Fig. 4. Combination of historical images with the current situation
[Sēlpils castle development sketch by the author]

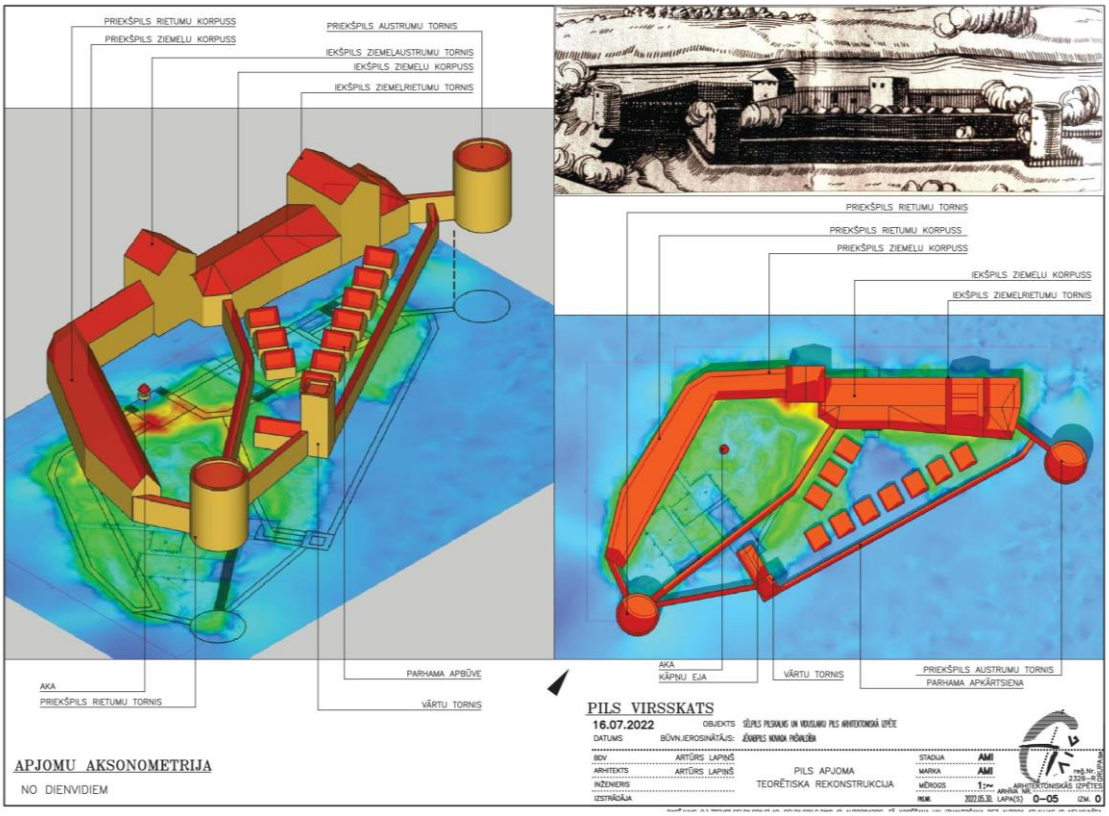

Fig. 5. Theoretical reconstruction of the castle space
[Sēlpils Castle development sketch by the author]

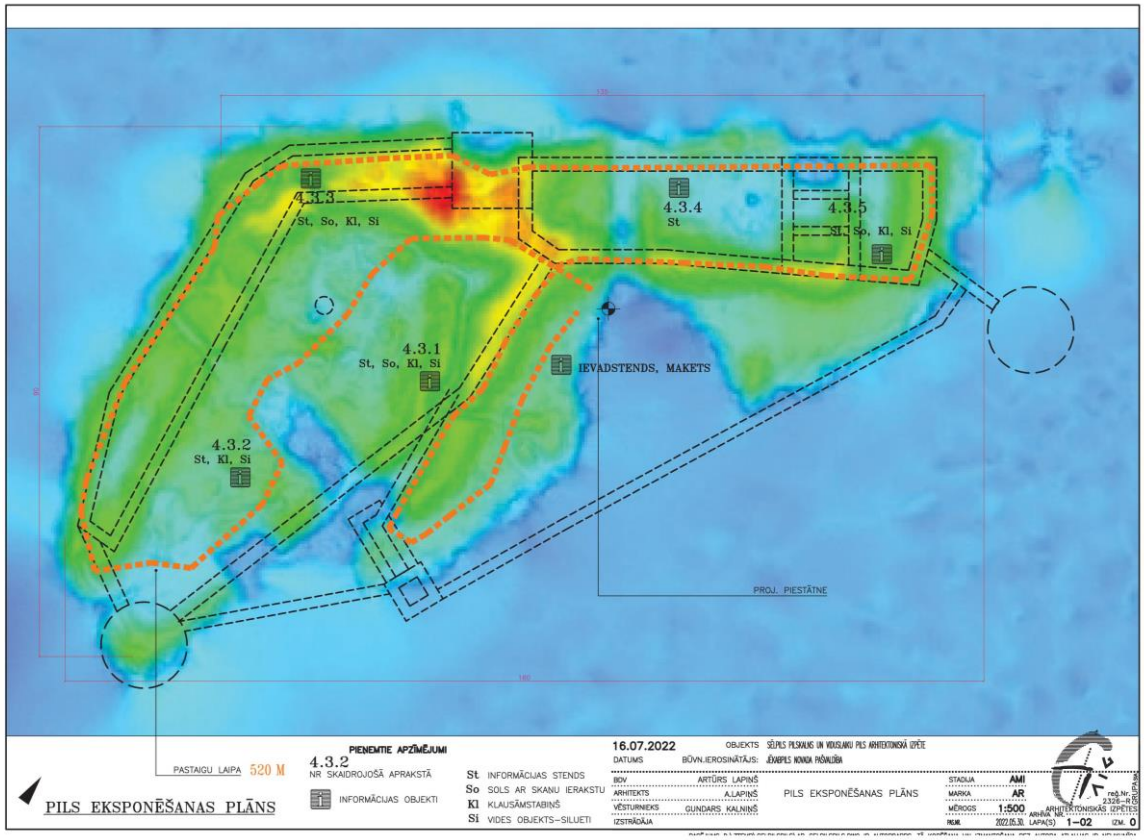

Fig. 6. Castle presentation plan
[Sēlpils Castle development sketch by the author]

Based on the research data, a detailed Sēlpils Castle interpretation plan was prepared [6]. To make the historical information obtained during the inspection of the Sēlpils hillfort multi-layered and accessible for different audiences, it is proposed to implement a complex set of mutually complementing interpretation tools. They combine auditory, visual, and tactile experiences, including new physical objects that use a stylised approach to visualise the appearance of the inhabitants of the hillfort in different historical periods and create a feeling of presence for the viewer.

Conclusions

The instrumental recording and upstanding archaeology of the Kuldīga and Sēlpils Castles, which are not actively present in the cultural environment, have led to new conclusions about their initial layouts, marking possible directions for the possible future research of these sites.

A detailed interpretation and presentation plan was also developed for Sēlpils Castle. Using the capabilities of technology, upstanding archaeology, as an interdisciplinary research method, enables a complex approach to documenting, interpreting, and presenting cultural historic heritage, even for heritage sites whose preservation is only fragmentary.

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Kopsavilkums. Arhitektoniskā izpēte ir analītisks pētījums, kura ietvaros tiek veikts objekta vizuāls apsekojums, uzmērījums un zondāžas konstatējamās iezīmes. Informācija tiek salīdzināta ar objektu saistīto grafisko un vēsturisko dokumentāciju. Veicot vēstures avotu, morfoloģiskā materiāla un stratigrāfiskos atsegumos iegūto datu savietošanu, tiek nodrošināta objekta tektonisko un formālo aspektu integrēta analīze. Objektā veiktā izpēte ļauj papildināt arhīva materiālos iztrūkstošās un sniegt papildus ziņas par zudušo vēsturisko arhitektūru, novietni un būvniecības pārbūves procesiem.

Arhitektoniski mākslinieciskо izpēti veic, lai noskaidrotu vēsturisko ēku kultūrvēsturisko un mākslinieciskо vērtību. Tālāk tiek pieņemts pamatots lēmums par objekta turpmāko attīstību, statusu un saglabāšanas risinājumiem.

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Malpils Manor: architecture, cultural and historical developments. Second half of the 18th century – first quarter of the 21st century

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Abstract. The history of construction of the Malpils Manor (Lemburg), which is closely linked to cultural history, has developed over a long period of time – from the second half of the 18th century to the present day. It has seen its heyday and its down times, when it was burnt down and destroyed. However, its fate was not sealed to disappear from the face of the earth, as has happened to many similar buildings in other Latvian manors. The manor house has blossomed again in all its glory, and is awaiting everyone who wants to spend some time in a well-tended historic and truly noble environment. However, the study of the manor in its broad cultural and historical context is still relevant.

Keywords: architectural heritage, monument protection and preservation

Introduction

The oldest known exterior view of the palace, or as it would have been more correctly called at that time – the manor house, is a late 18th century drawing by an unknown artist, preserved at the Herder Institute in Marburg, Germany [3]. It has been published by cultural history researcher Dr.art. Ieva Pauloviča, with explanations of the buildings and plantings depicted [7]. Surrounded by outbuildings and park elements, it shows a single-storey stone building on a high basement floor, covered with a gabled roof, the ends of which are bevelled. There are mezzanines on both sides, roof windows and an attic floor, as the building did not have a usable roof floor at this time. The depiction of the building, of course, does not allow us to judge about the details. This ancient building was built in the 1770s-80s, when the owner of the manor was Gustav Wilhelm von Taube (*Taube von der Issen*, 1715–1775), who bought the property in 1760. From this period, the vaulted hall on the ground floor (basement) has survived with a fireplace made of Allazi limestone in one of the walls.

Materials and Methods

After the death of G.W. von Taube in 1775, Malpils Manor passed into the ownership of his son from the first marriage with Christina Elisabeth von Venediger – Friedrich Wilhelm von Taube (1744–1807), the Landrat of Vidzeme. In 1806, he signed a pledge agreement with a landlord and merchant from Riga – Wilhelm von Blankenhagen (v. *Banckenhagen*, 1761 - 1840), according to which the manor was mortgaged. This decision must have been made due to large debts.

Financial difficulties continued to pursue the next owner of the manor and as a result, in 1820, the Malpils Manor was auctioned and became the property of [1] Friedrich von Grote (*v. Grote*, 1768–1836), the head of the Vidzeme Credit Society, from 1775 – Land Marshal and Landrat, who had studied law in Göttingen and Leipzig from 1768. His wife was Agneta Friederike von Gernsdorff (1777–1869). Until that time, hardly any major construction work has been carried out. Probably, the manor house had not changed its external appearance significantly over time, as the book by Heinz Pirang contains a picture of the last quarter of the 19th century, where the manor house looks similarly [11].

The building is covered by a grand gabled tiled roof with chamfered ends. The centre of the front facade is accentuated by a three-bay axial mezzanine with a triangular pediment with an oval-shaped window on its rather broad surface and a square window below it, which is an unusual architectural solution for the site. The facades are austere, without any decoration. Four symmetrically arranged chimneys rise above the ridge. You can see the lawn in front of the building, where the family of the owner of the manor is relaxing. The most interesting part of this photo is the main floor and the mezzanine windows, which show a Gothic division with gable spandrels. Is it the neo-style revival that has come into vogue and appealed to the manor's owners of those days, the von Grote family? In any case, for an ancient building, where heavy Baroque style is still present, these windows look rather unusual, yet interesting. It is possible that not only windows were Gothic but also the interior of the rooms, such as those found in other Latvian palaces and manor houses.

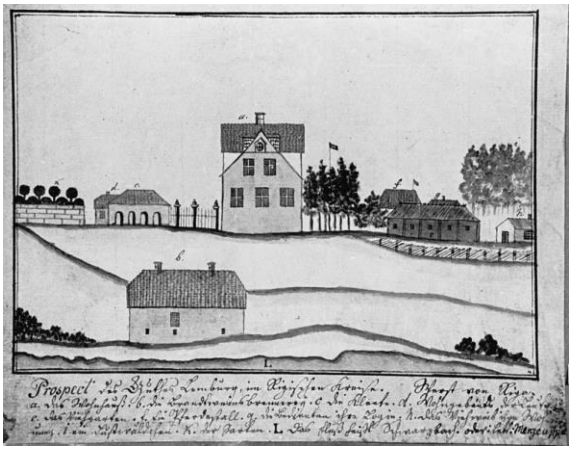

Fig. 1. View of the Malpils Manor. End of the 18th century [Herder Institute in Marburg, Germany]

Fig. 2. Wilhelm von Blankenhagen [internet sources]

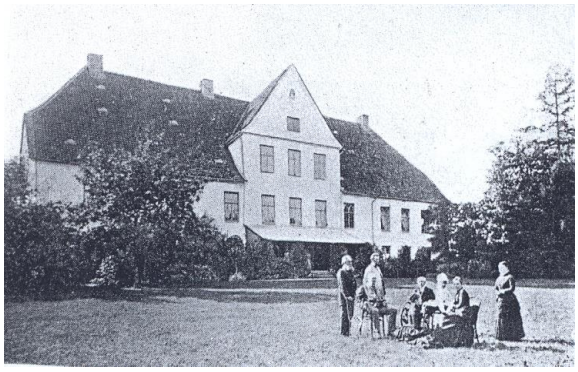

Fig. 3. Malpils Manor and its owners. Photo image of the last quarter of the 19th century [Pirang H. Das Baltische Herrenhaus. Riga, 1926]

After the death of F. von Grote, the Malpils Manor was inherited by his son Moritz Friedrich (1799–1884), who was married to Annette Klara Juliane Natalie, maiden name von der Borch (1801–1868). However, already in 1856, he chose his son Alexander Michael Andreas Maria von Grote (1829–1917), who was called Alexander in the everyday life, as the owner of the manor. In 1858, he married Countess Natalie Charlotte von Mellin (*v. Mellin*, 1831–1880), but their marriage was dissolved and they had no children. In 1875, Alexander von Grote entered into the second marriage with Fanny Armistead (*Armitstead*, 1852–1900). Two children were born in this marriage – Else Karin (1883–) and Karin Luzy (1892–), married name von Brüggen.

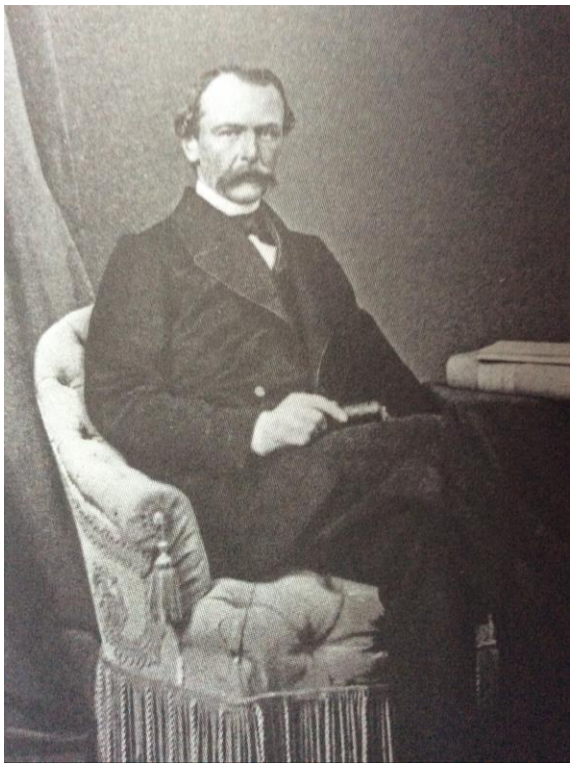

Fig. 4. Alexander von Grote [Verband der Baltischen Ritterschaften e.V., Krusenstern-Archiv, Bildarchiv Foto Marburg, id.nr 1.278.425]

Fig. 5. Else Karin von Grote [The Naukseni People's Museum]

In the 1870s, during the time of Alexander von Grote, the manor house was renovated. The renovation did not result in the loss of the overall historic exterior, but the new roof and roof windows, as well as the alterations to the mezzanine roof introduced significant changes. These innovations use some Gothic elements, such as stepped cornices. The mansard roof was topped with roof structures that were quite massive and awkward in their architectural composition – at the bottom of the stepped gable were three openings echoing a Palladian window. The roof windows on either side of the roof were more unpretentious. The walls of the basement level were decorated with rustication, the windows had decorative borders, the openings of the mezzanine also had sandriks, and the

Fig. 6. Else Karin von Grote with the children of her sister Karin Luzy von Grote – Alexander Philipp, Madeleine Else and Philipp Ernst in the Malpils Manor park [The Naukseni People's Museum]

slopes of the cornice were layered with arcature motifs. Above the central entrance, there was a porch with cellular stone columns and a terrace on the second-floor level. The main floor windows were still with Gothic tracery, elsewhere the division was hexagonal. It is not yet clear why the three openings on the right side of the second floor have been combined and lowered to the floor level. May be this place was intended for a conservatory? This is supported by the memoirs of Pauline Cornet, Elsa Karin von Grote's housemaid, who said that the most flowers in the manor house were in the room before the hall [4]. The palace library is now located in this part of the house.

The manor after 1905

The transformed manor house, which already resembled a palace, was not destined to last long – on November 27, 1905 it was burnt down together with other similar buildings in Verene (*Fehren*), Vestiena (*Festen*), Taurupe (*Taurup*), Vibroka (*Sudden*), Riktere (*Siggund*) and elsewhere. Only parts of the masonry remained. As the roof burned, the structures of the buildings and even the chimneys caved in. This view is presented in the publication summarising the devastation of the 1905 unrest in the manors of Vidzeme [6]. Eyewitness records and testimonies about the burning of the manor in Malpils have been preserved and published by Līga Lapa. *Rūdolfs Fukss, the manager of Malpils Manor...returned to Malpils and met many strange armed people in the manor, where his apartment was also located. The manager found that the utility room where the silverware was stored, and the wine cellar had been broken into. After a short time, a large crowd of half-drunk people arrived at the manor and started destroying the manor house, breaking windows, and then setting fire to the building and burning it to the ground [6].*

Fig. 7. Malpils Manor house after burning in 1905 [Livlands zerstőrte Schlősser. T. 1. Rigaer und Wendenscher Kreis. Riga: Ernst Plates, 1905 –1906, S. 12, 13.]

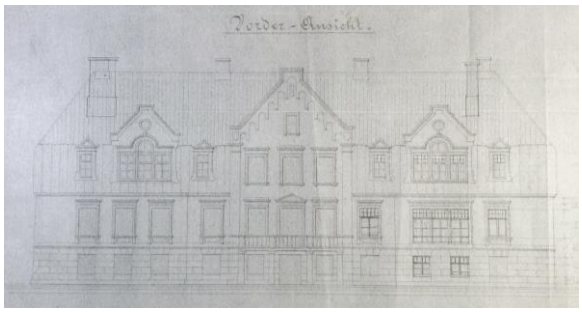

Fig. 8. Survey of the neo-Gothic reconstruction of the Malpils Manor house [Riga Technical University, Faculty of Architecture and Urban Planning, Training aids department. The materials are deposited in the Malpils Manor Historical Materials Collection]

V.L.N. Bockslaff's collection of works preserves a design of the courtyard and the final facade of the manor house, showing the building modified with Gothic elements [6]. A new division, different from the Gothic windows, has been designed for several windows. New chimneys have also appeared, which were not there before or later. On the park side, a covered terrace in wooden structures is planned, which is disproportionately low for the scale of the manor house. The drawing is not dated or signed.

After the loss of the family home and the cultural treasures accumulated over the centuries, it took more than a year before A. von Grote decided to restore the building. The design was entrusted to the well-known Riga architect Wilhelm Ludwig Nikolai Bockslaff (1858–1945) and the construction works were carried out from 1907 to 1911, the building project was signed in 1907. The works were managed by the Cecis builder Jānis Meņģelis (1829–1903) [13].

Fig. 9. The project of reconstruction of the Malpils Manor. 1907, arch. W.L.N. Bockslaff [RTU Faculty of Architecture and Urban Planning, Training aids department, the materials are deposited in the Malpils Manor Historical Materials Collection]

W.L.N. Bockslaff was a great master in the interpretation of the forms of historical art styles. He preserved the existing volume, more specifically the walls, while introducing late 18th-century classical motifs into the building's architecture, making it more presentable, more luxurious and more individual. Everything authentic that was left was preserved. The mansard roof also made the building more attractive and brought it closer stylistically to late 18th-century prototypes. The central bay was enlarged on both sides by adding another aisle. The architectonic and decorative design of the facades also became more expressive with classical forms dominating. The architect's refined taste, wonderful sense of style and professionalism are also evident here. The rustication of the ground-floor facades, which made the building heavier, was preserved, while the main-floor window apertures were decorated with sandriks, the central one with triangles, and the second-floor window apertures of the risalit were encircled by a decorative band with a keystone motif. The division of the windows follows the spirit of the period, with only a small chamfer at the top. A circular window wrapped by a festoon was placed in the centre of the pediment. The larger roof windows on each side of the risalit were made decoratively more detailed. They were no longer excessively large, as those that perished in the revolutionary events of 1905. Now they fully matched the architectural composition of the building's facades. Special attention was also paid to the two small roof windows. The architect retained the merged window apertures on the right side of the main floor, which break the symmetry and is uncharacteristic of W.L.N. Bockslaff. He paid great attention to every detail, providing personal drawings of the window and door structures, including the terrace on the park side. Both the railing and the configuration of the terrace have been varied and sought after [13].

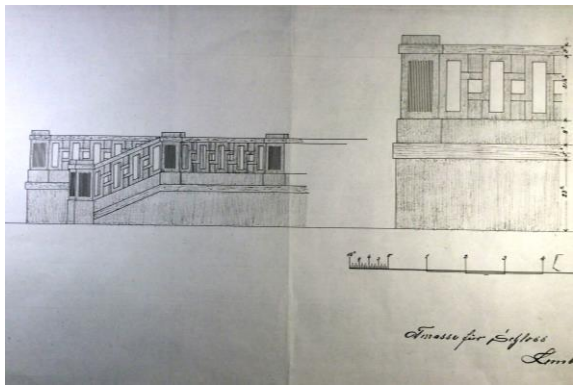

Fig. 10. A variant of the terrace solution. Architect W.L.N. Bockslaff [RTU Faculty of Architecture and Urban Planning, Training aids department, the materials are deposited in the Malpils Manor Historical Materials Collection]

Fig. 11. View of Malpils Manor. Photo of 1930s [NKMP PDC]

Fig. 12. View of the Malpils Manor. Photo of 1911 [Historical heritage collection of the Malpils Municipality]

Fig. 13. View of the Malpils Manor. Photo of the 1990s [NKMP PDC]

Fig. 14. Malpils Manor house [photo by author, 1976]

Fig. 15. Malpils Manor house, view from the park [photo by author, 2020]

Fig. 16. The central part of the manor house from the yard side [photo by author, 2009]

It is interesting that the two-storey extension at the right-hand end of the building, as seen from the parade yard, which is visible today and perceived as belonging to the site from the end of time, is not present in W.L.N. Bockslaff's project. This extension now houses a conservatory and a loggia above it near the Cigar Hall. It was boarded up during the Soviet times, but has been restored in its open nature. The extension is clearly visible in photographs taken around 1911 [4]. The ground-floor openings had segmental lintels. The roof of the second-floor loggia was supported by Doric columns, the sides were glazed with small-paned windows, and the railings of the open part were formed by balusters. This extension may have been made in the process of work with the desire to have a loggia on the second floor with a nice view of the park and the greenhouse.

But today we do not see the building exactly as we see it in the architect's design. Many its parts have changed, whether they have been lost or not built, or have been added. Photographs from the 1920s [4] already show a different division of the windows – fully small-chamfered, as it is now, a so-called blind window on the right side of the ground-floor, which is not in the project, simpler roof windows, decorative vases rising above the parapet behind the pediment (on both longitudinal facades). It is possible that these vases, which are not in W.L.N. Bockslaff's project, are the owner's own wish to make the building more luxurious. The vases are already present in photographs from the 1920s. In Soviet times, the inhabitants did not like the combined windows on the right side, where now the library is located, which are raised to the same height as the others.

The central part of the risalit and the corners are framed by cornices, which end at the top with a semicircular decoration. The intermixing of the eaves above these cornices with the framing of the perch on both ending facades is quite distinctive. It does not form a profile, but rather joins the eaves in a fluid way. The same solution is applied to the ending facades of the manager's house, which allows for suggesting that the two buildings may have been designed by the same architect.

Latvian agrarian reform and the Soviet period

Investigating the cultural history of a palace, it is important to learn about its use over time. After the Latvian agrarian reform, the last owner of the manor, Else Karin von Grote, who had no descendants, acquired in her ownership the manager's house, several outbuildings and 50 ha of land. In 1920, the manor house and the park were given to the Association of Retired Soldiers of the Latvian National Army, but it lacked the means to manage such a large site and, as a result, it was sold

to a private person. In 1940, the property was nationalised. From 1941 to 1949, the manor's building housed the Malpils Technical School of Home Economics, and from 1949 its premises functioned as the Malpils Technical Hydrotechnical Amelioration and Construction School. In 1967, the establishment of the Amelioration Museum started under the care of the Training aids department of the Malpils Technical School. In 1972, the construction of a so-called Malpils model village began, and Latvian Agricultural and Amelioration Museum was set up in the empty manor house [3]. At first it was located in one part of the ground floor, but as of 1984 it occupied the whole building. The aim of the museum was to study, preserve and promote the experience of hydraulic land improvement and to raise the qualification of land amelioration, to collect and preserve amelioration tools, design, construction and other materials [3].

During the Awakening, the fate of the manor house was not simple, the heirs of the former property emerged, whose generosity in restoring the site was questionable. In 2003, after several disputes, a private individual became the new owner of the manor. Restoration and reconstruction of the palace began in 2006 (SIA *Citadeles projekts*). Later, the project was supervised and adjusted by the architectural office SIA *KROKS*. This was followed by reconstruction works carried out by SIA *DJ īpašumi.* The works were completed in August 2008.

Interior design

The layout is an integral part of the building history of the manor house. Precise information about this in the time of the von Taube's family is lacking. It is likely that the overall layout was close to what we see today, as the load-bearing walls have not changed significantly from the period of the von Taube's family to the present day, with the exception of an extension to the ending facade on the greenhouse side.

The first floor, which can also be called the ground floor, had a hall in the centre with the main staircase adjacent to it. The hall, following tradition, had an access to a large space and a terrace with further exit to the park. The layout of this floor was mainly corridor-based, with only a few key rooms being walkable, but even these were accessible from the corridor. When you reached the second floor by the grand staircase, the central room was then the Panel Hall with the access to the terrace on the courtyard side. From it, you could reach a group of representative rooms – a large hall and two small halls arranged in an enfilade. The rooms for daily life were located to the left of the Panel Hall and were arranged along a corridor. This layout principle was typical of many 18th, 19th and 19th century manor houses. There are interesting small servants'

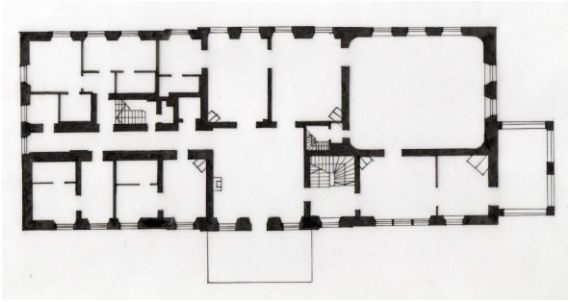

Fig. 17. The layout of the second floor of the manor house [author's drawing]

stairs next to the large main staircase, which was used to serve the meal to the Great Hall during celebrations. The third floor or attic floor of the building was designed for living only after the reconstruction in the 1870s, but especially after 1905, and could easily accommodate servants and guests.

The cellar of the palace is small and has preserved since the beginning. Today, it houses two small rooms covered with cross vaults. Initially, there could be a single space with a pillar in the middle. The basement can be reached by a small steep staircase from the corridor and is lit by two small windows on the park side. This is the same wine cellar which the rebels of 1905 broke into.

Historic and modern interior

The cultural and historical environment of the manor house is unthinkable without a look at the former and current interior. The interior of the palace has been created over the centuries. Only a few records have survived from the time of the von Taube's family, many of which perished in a fire in 1905, as a result of a change of ownership and the neglectful attitude during the Soviet period. There are only a few known indications of the past interior. For example, the von Blankenhageners, who owned the manor from 1806 to 1820, travelled a lot, and the palace housed art objects acquired during their travels. Ernestine Schoultz – Ascheraden writes about them in her memoirs: *When I was in Rome 35 years later, I saw a bronze train with Romulus and Remus in the Capitol, and then I remembered the small model in the Malpils Manor that was standing in front of me, and special tables that were for sale in Rome with different types of marbles in different colours (7).* The Blankenhagen collection, housed in the manor, also included two landscapes by the German-Baltic artist, writer and poet, Karl Gothard Grass (1767-1814), born in Dserben in the family of a Lutheran pastor, which were acquired in Rome. From these memories, we cannot say exactly what works of the artist adorned the interior of the Malpils Manor house, but it should be noted that K.G. Grass was one of the most prominent personalities in the European cultural environment, whose homeland was Vidzeme [10].

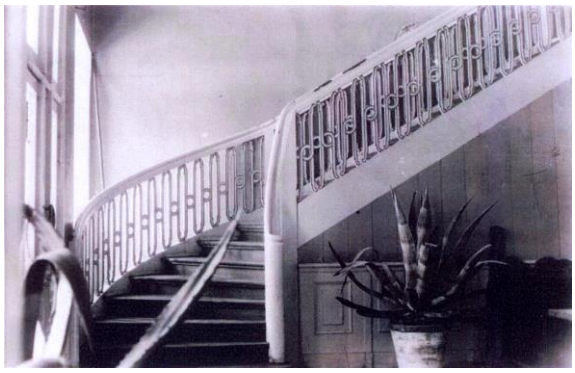

Fig. 18. The staircase of the Malpils Manor house [photo of 1930s. Collection of the Baltic Central Library]

Fig. 19. The Panel Hall [photo by author, 2009]

Fig. 20. The Great Star Hall [photo by author, 2009]

Things we can see and enjoy today are all historical things that has come to us and that careful restoration and renovation can bring today – the estate owner's understanding of the values to be preserved, his passion for collecting, and the accumulation of outstanding art treasures in an environment appropriate to them. Thus, entering the manor house through the main door, you see a hall (the hotel foyer) with two massive columns supporting the cross vault. The ribs are tonally accentuated, which emphasises the structural system. Fragments of the original staircase were preserved, carefully restored and integrated into the reconstructed staircase. Information about the original appearance of the staircase railings when the restoration work started was rather scarce – a photo from the 1930s, and that was it.

As already mentioned, a heavy fireplace made of Allazi cellular stone with a cornice supported by printed Doric half-columns survives in the hall from the time of the von Taube's family. The material itself, with its texture and shade, makes the fireplace picturesque. The floor tiles match the tonal solution of the hall, dividing the floor plane into rectangular squares with darker bands according to the arrangement of the columns. The hall displays several groups of historic furniture, such as two sofas with antique value, which provide a comfortable welcome for guests.

At the very centre of the second floor, on the parade courtyard side, there is the Panel Hall, one of the largest rooms in the manor house. It takes its name from the coffered oak ceiling, which survives from the renovation of 1911. The ceiling decoration was carefully restored during the renovation in accordance with correct methodology. It has been stripped of several layers of paint, both whitewash and oil paint, cycled, damaged parts dismantled and refinished with a historically appropriate knife, minor damages and cracks repaired with linseed oil, water leaks disinfected with an antibacterial compound, tinted with mineral pigments. The wood surfaces were then impregnated with cold-pressed linseed oil. It should be noted that all the original wooden parts were restored according to a common concept, using historically traditional materials – linseed oil, linseed oil tinsel, mineral pigments, etc. In this room, the historic windows with oak sills and leathered sashes and sills have been restored, and a green moulded glazed tile stove (second half of the 19th century) has been reinstalled. The floor of the hall is covered with herringbone oak parquet. The room is decorated with paintings by the Skulme family. Of course, a collection of historic furniture is presented here and elsewhere. It is a group of Biedermeier-style furniture in the corner by the window – a round table and four chairs in shapes popular in Central Germany in the 1830s. The other set of this style of furniture is next to the dresser – a sofa, four lounge chairs and a round table. Double doors lead from the hall to a summer terrace with a good view of the whole courtyard.

From the Panel Hall, you enter the Small Star Hall, named after the parquet floor with a star in the centre of an inlaid shield. The parquet is an exact copy of the historical parquet, as the original was unfortunately worn out beyond recognition in Soviet times. The ceiling is outlined by a recessed cornice, and the plafond by an oval frame. The room is furnished with a Biedermeier furniture group – a central table with armchairs. There is a cabinet standing by the outer wall made in the Bula technique in the second half of the 19th century – a

gift from Vladimir Hans Georg Herzberg (V. H. G. Herzberg) to the owner of the manor. On one side of the Small Star Hall, there is the Fireplace Hall, which has a newly installed white glazed tile stove (second half of the 19th century). The room is decorated with an Empire-style, carved mahogany chiffonier (first half of the 19th century), acquired from an antique shop in France. The paintings by artist Anita Arbidāne – copies of portraits of Baron Taube and his wife are above the chiffonier.

On the other side of the Small Star Hall, there is the Great Star Hall, which also takes its name from the parquet pattern. It has been restored from the fragments that still remain. The hall, which corners are rounded, retains restrained ceiling decorations from 1911 – the ceiling plane is framed by an oval cornice and circular decorations at the corners. A simple rosette accentuates the centre of the ceiling plane. The Great Star Hall is the most luxurious and the largest room in the manor house with the area 110 m^2. Interestingly that in the 1950s, the walls of the Great Star Hall were decorated with national ornaments in stencil technique, complemented by the coats of arms of the USSR. This is shown in a photograph of some celebratory event [4]. The parquet in the hall was well preserved at this time. The folk ornaments were no longer visible around 1985, as shown in another photo of the local mixed choir and spectators [4].

Next to the Great Star Hall, there is the Library, and the Cigar Hall is next to it, where a fireplace preserved from the manor times. Its cornice is supported by Gothic columns. In this room, at the initiative of the owners of the manor, a stone fragment with a segmental arch was uncovered, which is a testimony to the building history of its time. The Cigar Hall is adjoined by a terrace overlooking the orangery and a part of the park. The third floor can be reached by the main staircase or by the small stairs, which, being stripped of its many layers of paint, delights with its pristine colour and almost a hundred-year ageing.

Conclusions

The Malpils Manor house is a remarkable example of the interpretation of late 18th-century classical motifs, restored after the riots of 1911. Over the last decade, the revived manor house has attracted more and more visitors, tourists and public events. The interior of the palace cannot be called a hotel, a guest house or a venue for social events. The palace is more than that. In fact, a truly noble environment has been created here – the home of a wealthy family with ballrooms, salons, a library, etc. The upstairs suites are just an exclusive opportunity for the general public, who can appreciate and enjoy such a cultural environment, to find a night rest after the events and activities in the other parts of the palace. Latvian cultural heritage is complemented by a restored and renovated site that is accessible to the public.

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Kopsavilkums. Mālpils muižas pils (*Lemburg*) būvvēsture, kas ir cieši saistīta ar kultūrvēsturi, veidojusies ilgākā laika posmā – no 18. gs. otrās puses līdz pat mūsdienām. Tā piedzīvojusi gan uzplaukuma laikus, gan nedienas, kad tikusi nodedzināta un postīta. Tomēr liktenis nebija lēmis pilij nozust no zemes virsas, kā tas noticis ar daudzām līdzīgām ēkām citās Latvijas muižās. Tā atkal uzziedējusi visā savā krāšņumā, uzposta un iekārtota gaida ikvienu, kas alkst pabūt sakārtotā kultūrvēsturiskā un īsteni muižnieciskā vidē. Taču aizvien aktuāla ir pils izpēte plašā kultūrvēsturiskā kontekstā.

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Mālpils muižas pils ir ievērības cienīgs 18. gs. beigu klasicisma motīvu interpretējuma paraugs, ēku atjaunojot pēc 1905. gada nemieriem. Pēdējā desmitgadē atdzimusī pils piesaista aizvien lielāku interesentu loku, to apmeklē tūristi, tajā tiek rīkoti dažādi publiski pasākumi. Pils iekštelpas nevar dēvēt ne par viesnīcu, ne viesu namu, ne saviesīgu notikumu rīkošanas vietu. Pils ir kaut kas vairāk. Būtībā ir radīta īsteni muižnieciska vide – bagātas ģimenes mājoklis ar svētku zālēm, saloniem, bibliotēku utt. Augšstāvos esošie apartamenti ir tikai kā ekskluzīva iespēja plašākai publikai, kura spēj novērtēt šādu kultūrvidi un to baudīt, rast naktsmieru pēc pils telpās pavadītiem pasākumiem. Savukārt Latvijas kultūras mantojums ir papildināts ar restaurētu un atjaunotu, visai sabiedrībai pieejamu objektu.

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Traditions in the formation of historical manor parks of the Poltava Region (Ukraine)

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Abstract. The article is devoted to the historical manor parks of one of the picturesque regions of Ukraine – Poltava Region. The focus of the study is on traditions and peculiarities of their formation, which developed historically in the period of the 18th-19th centuries. Historical-factual, monographic, stylistic, and comparative-historical methods were used during the research. The methods of theoretical analysis, visual inspection and graphic reconstruction were also applied. The article presents a brief history of the emergence of manor and park complexes in the region. Foreign and local specialists, who were involved in their formation, including park areas, are presented. Manor parks were distinguished by the nature of landscape design and planning composition. The article proves that the functional and planning composition of manor parks of the Poltava Region was based on the following structural elements: park (landscape), economic and production, greenhouse, and orchard zones. The main features of the solution of the Poltava Region historical manor parks were revealed. They consisted in the harmonious combination of a natural massif of greenery with created landscape groups, existing water sources with artificial ponds, and architectural buildings of estates. Traditionally, life in Poltava manors was mainly focused on calm rest and the development of agricultural (or industrial) productions' branches. The landscape and hydrological characteristics of the area and the dendrological composition of the vegetation were the basis for the landscape-planning solution of manor parks. Local gardeners and gardening experts involved in the work tried to preserve and emphasize them. Manor parks continue to interest researchers as examples of garden and park art. Exquisite stylistic solutions, interesting landscape and dendrological compositions were tested on these private territories. Unique views and landscapes were created here.

Keywords: manor park, structural elements, landscape organization, features, historical traditions

Introduction

This topic lies in the context of studying the cultural and historical heritage of Ukraine and its regional traditions. It is closely related to the reproduction of the lost and preservation of the existing monuments of history, architecture and culture of the country. The gradual transition of the wealthy part of the state's population to family life in the estate may encourage owners to follow the traditions laid down in historical objects. Our Poltava region is no exception. Poltava Region has always been a significant centre of Ukrainian national culture. Therefore, it is appropriate to return to family roots, to the origins of the architectural and landscape organization of manor parks.

A number of studies related to manor and park complexes have been conducted in Ukraine. Currently, valuable material has been collected from various regions of the country - Kharkiv Region, Kyiv Region, Poltava Region, Volyn, Galicia and this continues. This research complement the extensive work on the in-depth study of the architectural and urban planning heritage of our country. Its main goal is to preserve national and regional traditions and replenish the State Register of Immovable Monuments of Ukraine with discovered objects.

The relevance of the study of manor and park complexes in Poltava Region is determined by a number of reasons. The first is the need to deepen historical, architectural and landscape knowledge in matters of manor park construction. This will help increase the aesthetic consciousness of our people, their spirituality, general culture and spatial and landscape thinking. The second reason is related to the danger of destruction of the remains of historical manor complexes. The time for study and research of these objects is shortened. The results of the search will make it possible to use the experience of architects of the past centuries as a methodical rationale for designing similar objects today. The third reason is a continuation of the previous one. It consists in the reconstruction of the preserved manor complexes, their organic inclusion in the modern urban structure. This determines the economic feasibility of this research. After all, these objects can be potential magnets of attraction for visitors. And therefore they will help the development of today's tourism sphere.

Materials and Methods

The purpose of this work is to highlight the traditions in the creation of manor parks that have historically developed in the Poltava Region. The research objects were established in the 18th-19th centuries in manor and park complexes

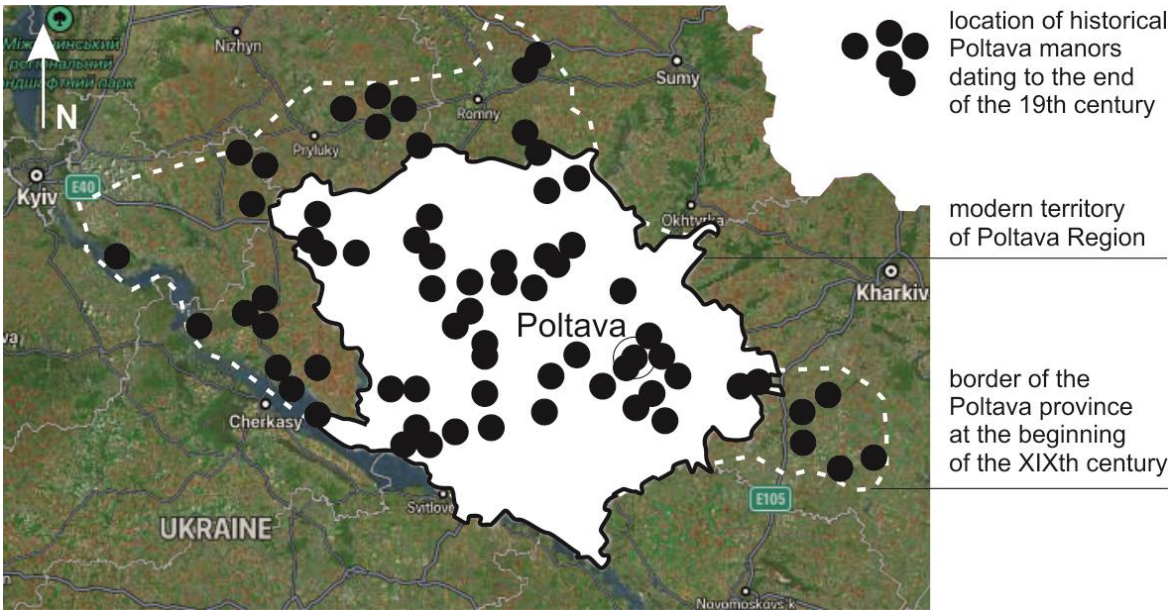

Fig. 1. The location of manor and park complexes on the map of Poltava province [from L. Shevchenko scheme]

of the region. Therefore, the boundaries of the study are determined by the chronologically defined period and geographically by the territory of Poltava Region from 1802 to 1925. Poltava Region was the Poltava province and had different territorial boundaries during this period. At that time, it partially included territories that on the modern map of Ukraine are part of the Kyiv, Chernihiv, Sumy, Cherkasy and Kharkiv regions.

The object of the research is historical manor parks. The subject of research is the traditions and peculiarities of their architectural and landscape organization. Manor parks in Khomutets, Berezova Rudka, and Dykanka impressed the beauty of more than one generation of residents of these settlements. Some methods of their organization and architectural and landscape elements were adopted in famous royal residences (Fig. 1). This is evidence of the high skill of the park builders of that time. They created unique landscapes in manor parks.

The study of estate and park construction is generally conducted at two levels - theoretical and empirical. The historical and factual method was used to identify these objects in the region, to find any information about them in various historiographical sources. Thanks to this method, both historical and modern sources have been discovered, which in one way or another affect this study. Archaeological materials, descriptive data, notes of travelers of that time, architectural and literary sources, scientific works, architectural and design materials make up a significant share of these sources. This made it possible to collect an important information base, to select factual material for further thorough analysis. In addition, it also helped to create and constantly replenish the base of manor and park construction objects. The detection of preserved objects is especially valuable at this stage. Their existing condition was recorded using the method of visual inspection and serial vision. For this, graphic drawings, watercolors and photographs were made, including those presented in this article. The latter more accurately reproduce the real state of the research objects. This method was also used to clarify the state of research of manor parks in previous scientific works. Objects of homestead and park construction in Ukraine were covered in scientific publications by V. Timofienko [22], V. Vecherskyi [3], I. Ignatkin [9], L. Vaingort [8], and Yu. Nelgovskyi [16]. Manor parks of the country were of interest to such Ukrainian researchers as I. Kosarevskyi [12; 13; 14], I. Rodychkin, and O. Rodychkina [19]. Works of local historians V. Hanko [24] and V. Kishik [10; 11] are also significant. Scientists O. Bayrak, V. Samorodov and T. Panasenko [1] highlighted the botanical and dendrological issues of Poltava Region parks, including historical ones. The authors' previous articles were devoted to the study of landscape objects [2; 17; 23]. Among the authors' works are articles devoted to the historiographical and cultural aspects of the estate and park construction of the region, the prerequisites for the emergence of complexes, the main urban planning factors of their formation [25; 26; 27].

The method of theoretical analysis made it possible to identify issues that have already been researched by scientists. In addition, issues that were left out of their attention have been also revealed. In particular, it was found that only the most significant manor complexes of the Poltava region were among the research objects in the field of view of scientists. They were considered in the context of estate and park construction in Ukraine in general, so they were revealed only superficially. The same applies to several manor parks. The use of this method

contributed to the identification of methods of organizing manor parks and their structural components. The compositional connection between them was also traced. For this, topographical materials, preserved descriptions, historical photographs, as well as the results of empirical studies were used.

The use of the monographic method enabled to in-depth study specific manor parks, their evolution, compositional, landscape and, if possible, dendrological characteristics. A comparative and historical method of research was used to identify features in the creation of manor parks and their regional specificity. Manor parks of Poltava Region were compared with analogues from neighboring regions - Kharkiv Region, Kyiv Region, as well as western Ukrainian (objects of the right-bank part of Ukraine).

The stylistic method was used in the study of stylistic directions and compositional techniques in the organization of manor parks. The method of graphic reconstruction and architectural computer modeling enabled the authors to theoretically recreate the lost research object and its fragments in the project proposal. In particular, it became possible to compare the results of theoretical data with old topographic data, to visualize park views, etc.

A brief history of the appearance of manor and park complexes in the Poltava region

Historically, Poltava Region had the conditions for the development of free territories by significant statesmen. The origin and formation of manor construction took place here in parallel with the process of the emergence of land ownership of the Cossack leaders in the region. That is why the first palace-park and manor complexes here were based on the hetman's residences and the estates of the Cossack leaders. Thus, a palace and park complex of hetman D. Apostol appeared in the village of Khomutets, hetman K. Razumovskyi in the village of Zgurivka, and hetman I. Skoropadskyi in the village of Berezova Rudka. The famous estates of the Cossack elders of the Galagan family were in Sokyryntsi and Digtyari.

Settlement of the region was connected with the processes of colonization of the region – by Cossacks, Cossack leaders, and by the state. Chronological rapid development of lands began at the beginning of the 18th century, after the Battle of Poltava. In the middle of the 18th and the beginning of the 19th century, the social, political and economic situation changed. The region turned into an ordinary Russian province with the introduction of appropriate institutions and procedures. O. Subtelnyi wrote, "the main issue of the political life of Ukraine in the 18th century is the long and persistent struggle between the Russia imperial centralism and the Ukrainian desire for autonomy" [21]. The main land concentrations for that period were the grants of Poltava lands by the Russian government. The lands of the region were given for significant public and military services to the state, and personal sympathies. There was also the purchase of estates and free land in the region. Some estates were inherited, and lands were arbitrarily appropriated. Monastery lands were often selected or purchased. Consequently, these processes contributed to the emergence of significant land holdings, estates, various types of manor formations, including palace and park ensembles among the nobility in Poltava Region.

At first, these estates were arranged according to Ukrainian traditions. And then - according to the "elite" position of their owners at that time and new trends that came from Western Europe to St. Petersburg and Moscow. An elite ruling class of the population on the Russian model was created. These are the nobility, landowners who were granted land in the Poltava Region to arrange their estates. Most of the owners spent a significant part of their lives in luxurious capital palaces. They absorbed new cultural and political trends and then tried to implement all this in their Poltava estates. Their high official position also contributed to a wide choice of architects and gardeners for their Poltava estates not only from the capital, but also from abroad. It also contributed to the worldview reorientation of estate owners. They began to introduce foreign and capital cultural and ethical norms into their lives. This was manifested in the external and internal arrangement of the complexes, their vital and functional processes.

Of course, estates had a long life and belonged to more than one generation of their owners. Their prosperity or decline depended, among other things, on the owners. The most exquisite objects were the princely palace and park complexes in Dykanka (Prince V. Kochubey) and Yagotyn (Prince M. Repnin). In terms of their grandeur and scale, they were similar to well-known capital estates and even foreign estates. As M. Bashkirtseva wrote once, after visiting the palace and park ensemble in Dykanka, "in terms of the beauty of the garden, park, buildings, Dikanka can compete with the Borghese and Doria villas in Rome. Excluding the inimitable and irreplaceable ruins, Dikanka is perhaps even richer: it is almost a small town. I don't count peasant huts, but I'm talking only about the house and services" [7]. Such data are also confirmed by travel notes of witnesses of these grandiose constructions. In particular, Otto von-Hoon, traveling through Ukrainian lands, witnessed the formation of a palace and park complex in Yahotyn. He noted that "a whole world is being

created here, and everything is in the latest trend according to the G. Menelas' plans. The local architect Godegart produces buildings. In no more than three years Godegart has almost already brought to the end" [18].

Well-known capital architects and specialists from abroad were involved in the creation of Poltava palace and park complexes and estates. Among them are Giacomo Quarenghi, Rastrelli, Mykola Lvov, and Luigi Ruska. Local architects, construction specialists and gardeners supervised the construction process. Amone them are Ferrare, Tamante, Reed, Richter, Pelts, Omelyanskyi, Ya. Kryvytskyi, and others. As for the park areas, the main idea was generated by the landscape architects involved in the work. And local gardeners implemented what they had planned. Thanks to this, ideas were often adjusted according to the topography of the area, existing vegetation, and available material resources. Therefore, manor parks had some differences among themselves, regardless of the prevailing styles, fashion trends and tastes of the nobility at that time.

Traditional structural elements of historical manor parks of Poltava Region in the 18th and 19th centuries

The basis for the development of the architectural and landscape layout of manor and park complexes of the Poltava Region in the 18th – middle 19th centuries was the personification of territories with recreation and management. In most estates of the region, the development of these functional components took place in parallel. The territory for recreation in all estates was decided as a park. It synthesized the main trends in the development of the park areas of European and capital palace and park complexes and the planning structure of Poltava manors of the Cossack leaders of Poltava Region at the end of the 17th - beginning of the 18th centuries. According to the level of planning and compositional organization of the park territories of significant manor complexes of the Poltava Region, zones of intensive intervention and forest park zones are distinguished. Zones of intensive intervention were directly adjacent to the central part of the complexes. In the vast majority of estates, forest park zones are areas behind lakes and reservoirs. These territories were most often a forest massif transformed into a forest park. Here, closed (arrays and groups of trees) and open areas (lawns, meadows) alternated with each other with wide curved roads.

The main attention during the planning of the territory was paid to the part that is much smaller in area, but which dominated the lakeside part. This is the territory from the entrance zone of the estate to the water body. The landscape and planning composition of this manor parks part also based on a combination of open and closed spaces. The functional and planning composition of manor parks in such complexes was based on the following structural elements:

1) park (landscape) zone;
2) greenhouse farming zone;
3) orchard area;
4) economic and industrial zone.

The park or landscape zone reached considerable dimensions. It became a bright expression of new realizations in the field of landscape architecture of that time. The massive nature of the establishment of manor parks at that time testifies to the high culture of landscape development. Approaches to the formation of the park part depended on the topographical and landscape situation. The basis for its development was the traditional use of local flora and rationalism in choosing a location. For manor parks, lands that were not very profitable for agriculture were used forest areas, river valleys, ravines, etc. Often, manor complexes were founded on the territory of long-existing green areas, near rivers and ponds. For example, the estate in the village of Khomutets arose on the site of a natural forest on a small rise of a flat plateau. From the northeast, the territory of the historical park was washed by the Rudka River, and from the south by the Khorol River. And the manor complex in the village Dykanka began in the then "dense forest" with wild boars, which surrounded the village from all sides [11]. In addition, ponds were created in the lowlands. Manor in the village Yagotyn was founded on a picturesque territory of more than 4 km along the Supoi River. Therefore, in each case, the landscape composition of the vast majority of the manor parks territory was decided individually.

As for the front part of the park, it had common features in the central (representative) part of the vast majority of estates. This is the section of the park from the main entrance of the manor complex to its main building. As a rule, it was solved by regular compositional techniques. They were followed from the transformed Italian and French canons of park construction. Characteristical features of this zone are a straight main alley, a parterre with a clear geometric shape, boskets, and trimmed forms of plants. Already from the first steps along the alley, the grandeur of the manor and the importance of the manor owners were felt. As a rule, in most estates, the alley was homogeneous and single-row. Local species of plants were used for its creation – chestnuts, lindens, birches, maples, poplars, oaks, and pines. For example, the main alley of the Dykanka's estate was chestnut and stood out from the others due to its length. Until now, ancient oaks from the former oak alleys of this estate have been preserved (Fig. 2). Walnut, linden and

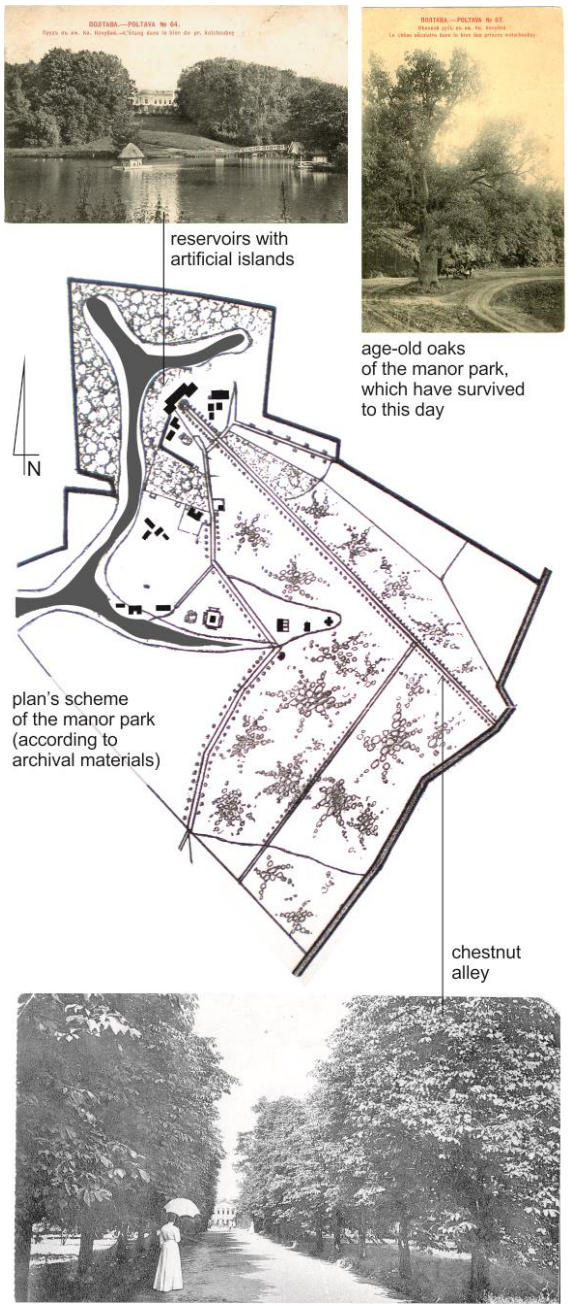

Fig. 2. Manor park in Dykanka
[photo of the beginning of the XXth century from the stock of L. Shevchenko]

chestnut alleys were created in the Khomutets's manor. And the estate in the village Berezova Rudka was famous for its alleys made of linden, oak, walnut, pine and bitter chestnut [20].

The parade through the alley always ended with an open space in front of the main building of the manor - the palace, the house of the state owners, etc. And in this, too, a sophisticated plan was implemented. The slenderness and straightness of the alley clearly indicated the path that must be taken in the semi-shade and get out into the "light of God" - the bright, open area of the manor. I think it is not necessary to talk about the impressions that filled the visitors of the manors at the same time.

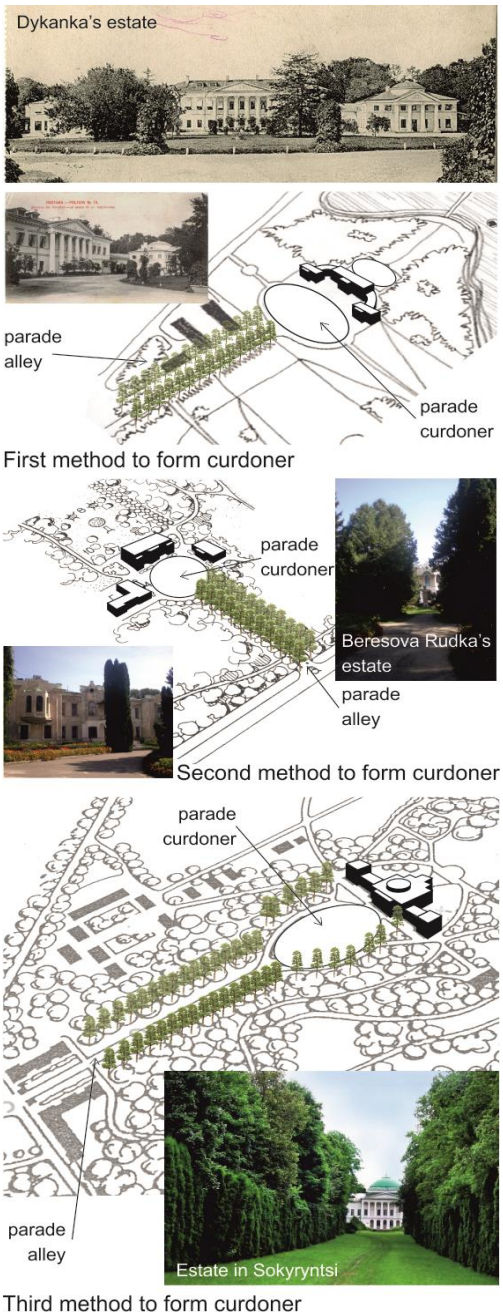

Fig. 3. The formation of a parade curdoner in front of the main house of the estate
[photo from the stock of L. Shevchenko]

The main building was illuminated and partially visible even at the beginning of traffic in the alley. But it was revealed to the maximum extent only when exiting the alley onto the lawn in front of the palace. The composition of the main buildings played a major role in the formation of this open part of the manor park. In the vast majority of estates, the main buildings were located in such a way as to form a curdoner (from the French cour d'honneur - "court of honor"). This is a semi-open courtyard in front of the main entrance to the palace. In the Poltava estates, this was solved in three ways (Fig. 3). The first way is the so-called "Palladian type" of the composition, when the main building

was connected to the outbuildings due to curvilinear galleries. Such a composition was implemented in estates in the village of Khomutets, the village of Dykanka, the village of Digtyari, and the village of Krutyi Bereg. The second way is when the main building is located perpendicular to the alley, and all the others are separately next to it, moved forward. Thus, an open area of the park was formed. Such a composition was implemented in estates in the village of Berezov Rudka, the village of Vyshnyaki, and the village of Yagotyn. The third way was characterized by a linear arrangement of the main buildings of the manor, but perpendicular to the main alley. The boundaries of the open space in this case were helped to form the surrounding vegetation. Such decisions are characteristic of estates in the village of Sokyryntsi and the town of Reshetylivka. The first two methods were the most used in Poltava estates. Such compositional techniques made it possible to reveal the space in front of the main building of the estate, thus emphasizing its significance. This space was decided in the form of a circle or semicircle, oval or semioval. In most estates, this area was covered with a lawn, with low bushes. Sometimes trees were included in the composition, as in the estate in Dykanka.

The area behind the main building, on the side of its courtyard facade, was similarly decided. The building was opened to nature due to the arrangement of open terraces, porches with elegant stairs to the open area of the park. In this way, distant perspectives on meadows, plant groups, rivers, reservoirs with islands, etc. opened up from the terraces. These parts of manor parks were similar in most manors. The open area behind the owner's house was mostly landscaped. As an exception, regular flower gardens in estates in the town of Reshetylivka and the village of Dykanka (Fig. 4). As already mentioned above, a heraldic flower garden was created in the village of Dykanka. Its composition includes trimmed forms of plants, decorative trees and shrubs (including those not typical for this region: palm trees, etc.), the arrangement of sculptures around the perimeter of the rectangle. We assume that a similar technique was used in the estate and park complex in Reshetylivka. This is evidenced by archival materials [6], which focus on the flower garden behind the palace (Fig. 5).

All the rest of the landscape zone was decided exclusively by landscape techniques. It personified the traditions of the English and Eastern schools of park construction, at the same time, preserving and emphasizing the existing natural components as much as possible - winding paths, free placement of plant groups, natural outlines of water bodies, etc (Fig. 6). A kind of natural action was created, in

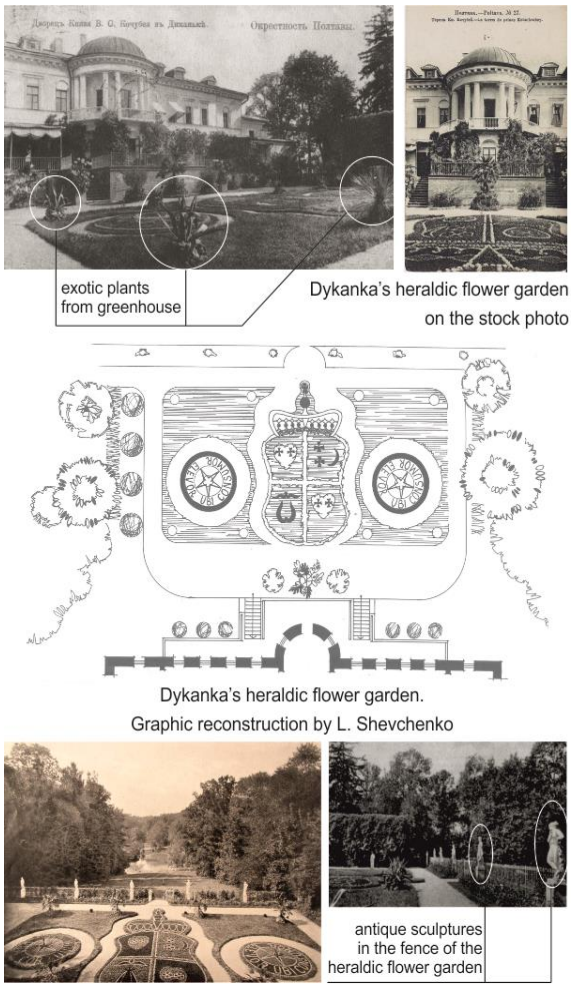

Fig. 4. Regular flower garden in the manor park of Dykanka [photo from the stock of L. Shevchenko]

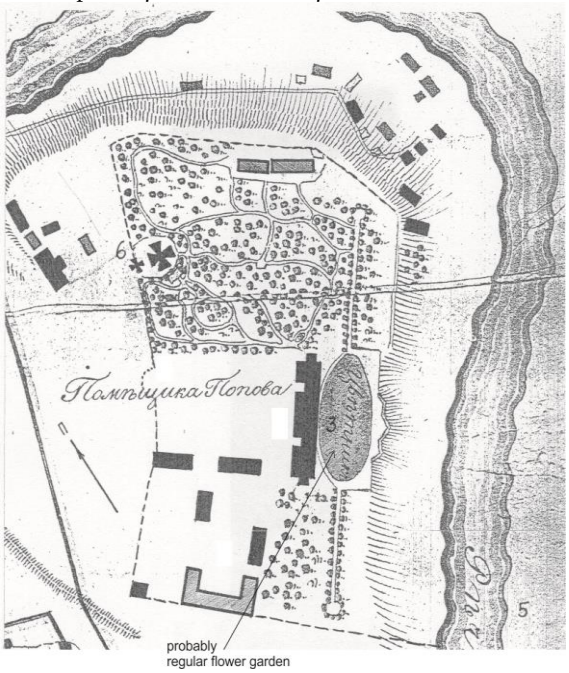

Fig. 5. Location of the flower garden in the manor park of Reshetylivka [photo from archival sources]

Fig. 6. View of the manor park of Berzova Rudka [photo by L. Shevchenko, 2015]

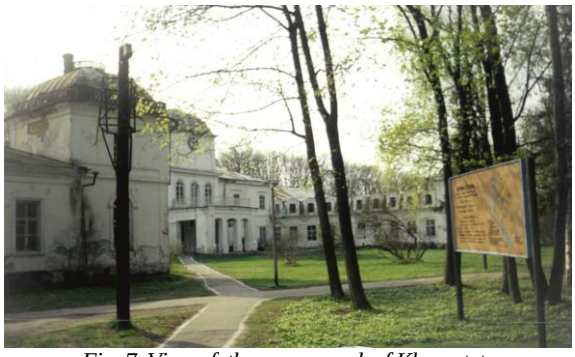

Fig. 7. View of the manor park of Khomutets [photo by L. Shevchenko, 2012]

Fig. 8. View of the manor park of Berzova Rudka [photo by L. Shevchenko, 2015]

which the pictures of living nature changed, unfolding from the appropriate viewing points (Fig. 7). The main role was played by natural components that varied in color and shape of the crown. The nature of the relief and the compositional scheme of the entire park territory led to the localization of rest places in the most attractive and quiet places, closing the best perspectives of the landscapes with small architectural forms - gazebos, bridges, grottoes, benches (Fig. 8). As Kosarevsky noted, "the park builders of this period, forming park landscapes, borrowed the brevity of the past and at the same time showed great skill in the detailing of significant forms. And what is no less important, they managed to demonstrate the beautiful in the most effective coloristic and three-dimensional combination of plants" [12].

The zone of greenhouse farming was a new phenomenon in that period. The emergence and formation of this zone in the large estates of the Poltava Region was determined both by utilitarian needs and the necessity to follow metropolitan trends. The territory of the greenhouse farm consisted of the actual building of the greenhouse, a greenhouse, and various flower, shrub, and tree nurseries, rose gardens, and lilac gardens (Dykanka). The development of greenhouse farming gave the estate owners the opportunity to use various types of plants (including exotic ones) on the walking area of the estate. Some noblemen of the region were personally involved in the acclimatization of exotic plants on their territory, breeding their own species of plants [5]. This contributed to the expansion of the species composition of vegetation and the possibility of diversifying landscape groups on the territory of the estates of significant landowners of the Poltava Region. The level of plant acclimatization was high enough. This is evidenced by the fact that Russian noblemen borrowed plants from Poltava estates for their St. Petersburg and Moscow palace and park ensembles. As evidenced by a letter from the manager of the Dykanka's estate Andriy Kryzhanovsky to the owner Prince Viktor Kochubey dated November 5, 1824, "Empress Maria Fedorivna, having visited the greenhouses in August, marveled at the elegance and richness of the plants and from one greenhouse took a plan for the construction of the same one in Pavlovsk" [4].

The orchard area gave the manor parks a local flavor. This was the observance of the traditions of the organization of the Poltava Region Cossack leaders' estates. In most estates, orchards were located behind the palace (such as in Dykanka, Berezova Rudka, etc.). And in the Khomutets's estate there was an orchard in front of the palace. Regardless of the localization in the park territory, the architectural and planning organization of the plots of orchards was decided by purely regular compositional methods: planting trees in a square (manor parks in Khomutets, Berezova Rudka) or along alleys at the same distance (manor park in Dykanka). Orchards included apple, pear, plum, apricot, dogwood, and other fruit trees. In his travel notes, the German scientist and naturalist A. Hildenstedt mentions the Khomutets estate, which was owned by the Muravyov-Apostol family.

In particular, he singles out the garden with greenhouses, which are worth special attention. Grapes, mulberries, walnuts, peaches, apricots, bergamots, varieties of pears, apples, plums and cherries were grown in the garden [20].

In some manor complexes, artificial and natural reforestation was carried out on designated areas. There were nurseries of fruit trees, plots for growing hops (the manor in the village of Dykanka).

The economic and industrial zone was mainly in large manor complexes. The appearance of this zone was due to the development of capitalism and reforms in the second half of the 19th century. Farming in estates did not always provide stable income. The owners of manors tried to get profits from the factories that were located on their estates. The result of these processes was a significant increase in economic zones in large estates of the Poltava Region. And later this led to the formation of large economic and production zones in estates with their location in the settlement. It is not by accident that most of the large estates of the Poltava Region were exemplary in the household and economic sense (such as the manor complexes in Dykanka, Yagotyn, Kruglyk).

The progressive economic activity of the estates' owners also influenced their long-term functioning. For example, the Dykanka manor successfully operated factories for breeding thoroughbred English horses, fine-wool sheep, dairy Simmental cows mixed with local, Berkshire and Temvor pigs. A brewery, brick and pottery factories, and a mechanical workshop worked successfully here. The owners of estates not only provided for their family and manor, but also solved the food issues of entire districts of Poltava Oblast.

Conclusions

So, the general regularities of solving the historical manor parks of the Poltava Region consisted in the harmonious combination of the natural massif of greenery with the created landscape groups, existing water sources with artificial ponds, and the main architectural buildings of the estates. The main attention was paid to the front park part, starting from the entrance area through the front alley to the open space in front of the owner's house with the possibility of visual perception of the territory behind the house. Such techniques were characteristic not only of Poltava estates, but also of many manors from other regions of Ukraine.

But manor parks of the Poltava Region inherited the traditions of organizing the life of the Cossack leaders, which perfectly coexisted with the "new trends" of the time. The research revealed regional features in the historical manor park construction, which consisted of:

1) formation of four main structural zones of the parks - landscape, economic and production, greenhouse and orchard zones;
2) the functional purpose of estates, focused mainly on calm recreation and the development of agricultural production (in some cases – industrial), which resulted in large areas of the estates' economic territories;
3) the landscape-planning decision of the estates park territories, the basis for which were the landscape-hydrological characteristics of the area and the dendrological composition of the vegetation;
4) the compositional and spatial organization of the territory of the estates, which was manifested in the formation of landscape zones based on natural relief forms and the absence of artificially created natural structural elements such as grottoes, caves, etc. in the vast majority of estates;
5) involvement of local gardeners and park builders in the work, who tried to preserve the existing natural fund as much as possible and emphasize and highlight its best features throughout the territory of the manor parks.

Historical manor parks of the Poltava Region were the decoration of the estates of more than one generation of their owners. They are interesting from different points of view. On the one hand, as historical objects they are connected with important historical events of the region, with the life of famous people. On the other hand, manor parks are examples of characteristic architecture of the corresponding period. These objects are of no less interest to researchers as works of garden and park art. They became a canvas for interesting stylistic solutions, exquisite landscape and dendrological compositions, platforms for the adaptation of a number of introduced plants. That is why manor parks of the Poltava Region will continue to remain in the field of view of scientists and researchers.

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Kopsavilkums. Raksts ir veltīts vienam no gleznainajiem Ukrainas reģioniem: Poltavas apgabala vēsturiskajiem muižu parkiem. Pētījuma uzmanības centrā ir tradīcijas un to veidošanās īpatnības, kas vēsturiski veidojušās 18.–19. gadsimta periodā. Pētījuma gaitā tika izmantotas vēsturiskās, monogrāfiskās, stilistiskās un salīdzinošās metodes. Tika izmantotas arī teorētiskās analīzes, vizuālās apskates un grafiskās rekonstrukcijas metodes. Rakstā sniegta īsa muižu un parku kompleksu rašanās vēsture reģionā. Tiek prezentēti ārvalstu un vietējie speciālisti, kas bijuši iesaistīti to veidošanā, tostarp parku teritorijās. Muižas parki izcēlās ar ainavu dizaina un plānošanas kompozīcijas raksturu.

Rakstā pierādīts, ka Poltavas novada muižu parku funkcionālā un plānojuma kompozīcija balstījās uz sekojošiem strukturālajiem elementiem: parku (ainavu), saimniecisko un ražošanas, siltumnīcu un augļu dārzu zonas. Tika atklātas Poltavas novada vēsturisko muižu parku risinājuma galvenās iezīmes. Tie sastāvēja harmoniskā dabiskā apstādījumu masīva apvienojumā ar izveidotām ainavu grupām, esošiem ūdens avotiem ar mākslīgiem dīķiem un muižu arhitektoniskām ēkām. Tradicionāli dzīve Poltavas muižās galvenokārt bija vērsta uz mierīgu atpūtu un lauksaimniecības (vai rūpnieciskās) ražošanas nozaru attīstību. Teritorijas ainaviskās un hidroloģiskās īpašības un veģetācijas dendroloģiskais sastāvs bija par pamatu muižu parku ainaviski plānošanas risinājumam. Darbā iesaistītie vietējie dārznieki un dārzkopības eksperti centās tos saglabāt un uzsvērt. Teritorijās tika izmēģināti izsmalcināti stilistiskie risinājumi, interesantas ainavas un dendroloģiskās kompozīcijas, kā arī tika radīti unikāli skati.

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The influence of religious and worldview factors on the landscape design in Japan and China

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Abstract. The role of religious beliefs and philosophical teachings in the development of traditional landscape design principles and techniques is analyzed in the article. Examples for the analysis of this development were the traditional cultures of two countries of the Far East – Japan and China.In these cultures, animistic beliefs in the supernatural nature of the elements (sun, wind, thunder, rain, lightning), nature as such (worship of sacred trees, water, etc.) were organically combined with later Buddhist canons, which eventually led to the syncretism of religious and philosophical teachings – Buddhism, Taoism and Confucianism in China, Buddhism and Shinto – in Japan.

The analysis was carried out on the material of traditional gardens most visited by tourists, which are positioned as typical examples of traditional landscape design in both countries.

It is proved that the landscape design both in Japan and China developed according to principles similar to the development principles of other types of arts in these countries. In particular, Chinese landscape design was based on the harmonization and improvement of nature, aimed at creating a certain hedonistic space, on the other hand, Japanese landscape design had religious origins from the beginning and was aimed at self-improvement through the observation of nature.

Keywords: Religious factors, natural landscape, imagery, architecture, China, Japan

Introduction

The turn of the 20th and 21st centuries was marked by the emergence of a sustainable development copcept prioritizing the long-term interests of human survival over quick profit. There has been a change in the attitude towards the natural environment: it is no longer considered only as a source of inexhaustible resources subject to "subjugation" and transformation. The awareness that man is an integral part of the natural environment in the form it was formed and exists forced to consider the preservation of the environment not from the point of view of abstract world harmony, but as a guarantee of the survival of human as a biological species.

Examples of two cultures, Chinese and Japanese, show the role played by attitudes towards nature in the traditional philosophical and religious teachings of different peoples and how this directly affected the landscape design and imagery of traditional Chinese and Japanese architecture.

It is well known that traditional Chinese gardens (a traditional example of which are the gardens of Suzhou) are a kind of "landscape collage" made up of a set of miniaturized "iconic" landscapes collected from different regions of China [34, 35, 36]. Characteristic features of a traditional Chinese garden are a set of various landscape paintings that are revealed to the visitor when moving through the garden, and the physical dimensions of the landscape elements depended primarily on the garden owner's social status. Despite the fact that at various stages of the development of the art of landscape design in Japan, various types of gardens were successively borrowed from Chinese culture, they quickly acquired a unique Japanese flavor. So, for example, in contrast to the diversity of the Chinese garden, in Japan, when arranging landscape design objects, the techniques of dominance of one of the elements (water garden, rock garden) became widespread, and specific types of gardens intended for meditation (rock garden, tea garden) [12].

Thus, to generalize, in traditional Chinese landscape design, the aesthetics of diversity and small details prevails, and in Japanese – the aesthetics of minimalism, emptiness and the absence of small details. Such a cardinal difference cannot be logically explained, being limited only to the difference in natural and climatic conditions or socio-economic factors. This makes it possible to assume that such a significant difference in aesthetic approaches has its roots in the religious and worldview differences of the two national cultures.

The main goal of this article was to find out, analyzing the most famous landscape tourist objects, how traditional religions and philosophical teachings influenced the aesthetic criteria, principles and techniques of traditional Japanese and Chinese landscape design. The tasks of the research were as follows:

- to analyze the development of religious beliefs, philosophical, religious and philosophical teachings in China and Japan and reveal their influence on the formation of national culture, national mentality, and aesthetic criteria;
- to select typical examples of historical gardens in China and Japan and determine the list of landscape techniques used in them, which are associated with the concept of traditional landscape design in these countries;
- to investigate the existence of a connection between these techniques and the main provisions of traditional Chinese and Japanese religious beliefs, philosophical-religious and philosophical teachings.

Methods and Sources

The study's goal determined the set of scientific research methods used. The method of historical analysis and the method of philosophical and religious analysis allowed to determine the specifics of philosophical and religious teachings and their manifestations in landscape architecture, to highlight the role of the natural surrounding in shaping the imagery of traditional architectural objects by different peoples. By applying the two aforementioned methods, the spread of religious beliefs and philosophical teachings in China and Japan was considered in the context of countries' general historical development.

The comparative analysis method allowed to compare the factors shaping the imagery of the landcape architecture of the two countries on the basis of comparing beliefs, religious and philosophical teachings, to identify commonalities and differences between them.

The research procedure was as follows. Initially, a set of historical gardens, which are positioned in China and Japan as carriers and expressions of national culture, were selected for analysis (among them – Lingering Garden and Master of Nets Garden in Suzhou, Bamboo forest Arashiyama, Kyoto, Tenryu Shiseizen-ji). Then the list of landscape techniques used in these gardens was determined.

The set purpose determined the list of processed scientific sources on the research topic. The works of researchers of Ukraine and Poland such as D. Chernyshev, M. Dyomin, A. Dmytrenko, Y. Ivashko, D. Kuśnierz-Krupa T. Kuzmenko and M. Orlenko [7, 8, 9, 21] were analyzed.

The block of publications devoted to China is represented by the works of L. Fang [2], Z. Fang [3], W. Huang [6], Z. Jiang [11], C. Li [15], D. Liu [16], Q. Lou [18], J. Pan [22], Y. Pei [23], Y.Z. Tong [27], G.Wang, H. Zhang [30], Y. Wang [31], Y. Xing [32, 33], G. Zhao, M. Qiu [35], W. Zhou [36], G.Y. Zhu [37], J. Zhu [38],.

The block of publications devoted to Japan is represented by the works of H. Shevtsova [25], N. Anarina and Ye. Dyakova [1], W. Kuitert [12], G. Nitschke [20], N. Vinogradova [29], M. Shigemori [26], D. Young and M. Young [35]. Basic philosophical sources were involved separately [5, 13, 14, 19, 28].

Elaboration of the sources proved the need to generalize the characteristics of the famous gardens of China and Japan in terms of their philosophical and religious analysis and a comparative analysis between these gardens in order to determine commonalities and differences between them.

Religious and philosophical principles of landscape design in China

Chinese culture, with all its variety of forms and meanings, has (according to various sources) 25–30 centuries of its existence. And, characteristically, during all this historical period of time the attitude to religion, the nature (both live and not live), traditions, rites and holidays remained almost invariable.

The cornerstone of Chinese culture, in our opinion, is religious syncretism – the long-term coexistence of Confucianism, Taoism and Buddhism and their slow convergence, with Confucianism prevailing in the field of ethics, Taoism appealed to human sensuality, and Buddhism, in turn, gave birth maintained illusions about a bright future.

In fact, the system of gods in Chinese spiritual culture was complex and multi-tiered. On the highest tier, according to Leonid Vasiliev, were the national cults of Heaven and Earth, and only the Emperor had the right to performance of acts of worship to them in special, metropolitan temples [28, p. 314].

At the same time, one cannot fail to note that, despite the large number of temples, religions and rituals, the focus of the spiritual life of the average Chinese for thousands of years remained focused on the earthly world, and not on the idea of the afterlife. Confucius himself probably expressed this idea best when he answered the question of one of the dignitaries of the Lu principality about what wisdom consists in: "Wisdom consists in taking seriously the duties that concern people and, respecting the spirits, refraining from them aside" [14].

This is why attempts to import foreign religions such as Buddhism into China, even when the rulers actively planted the new religion, invariably ended in failure after several centuries. The number of followers of new religions remained relatively small.

It is possible to trace a certain influence of Taoism on the internal structure of a traditional Chinese garden, where artificially mounded hills often symbolize three mountains – Penglai, Fāngzhàng, and Yíngzhōu, located on islands in the Bohai Sea, where, according to Taoist legend, the Eight Immortals live – outstanding personalities born by humans, but later became immortal [5, 13].

At the same time, the owner of the garden, arranging the likeness of the mountain where Immortals live, did not set himself the task of achieving internal moral perfection and acquiring

other virtues characteristic of Immortals. He simply wanted to create a corner of perfect nature, like heaven on earth (to use European concepts).

It should be noted that the functional purpose of Chinese gardens with their special arrangement (unlike the Japanese style, where the stay in the park/garden should set the visitor to relax, meditate, immerse yourself, etc.) has another purpose – to impress visitors with the diversity of the landscape, aimed at contemplation/reading. The ethical and philosophical content of landscape art in China was so great that it is quite right to put it on a par with such traditionally important Chinese arts as calligraphy and painting. It is no coincidence that Chinese researchers have emphasized the features of the art of painting in ancient Chinese gardens, compared art genres and the same genres embodied in landscape paintings.

China's gardens are very diverse and, at the same time, similar to each other. There are samples of large parks and at the same time miniature, but the arrangement is identical. They are conditionally divided according to their functional purpose. A classic example of a Chinese garden is the famous gardens of Suzhou (Fig. 1).

A traditional Chinese garden (Fig. 2) is the embodiment of the basic principles of Chinese landscape design gradually formed during many centuries, which provided:

- subordination to the existing natural environment (water, terrain), which was called "act according to the circumstances";
- borrowing of the landscape, i.e. the maximum inclusion of landscapes outside the garden in the landscape sceneries;
- separation of primary and secondary, hierarchy of elements-components of landscape sceneries);
- contrast as a means of imagery and the creation of emotional impression (light-shadow, high-low, near-far, etc.);
- the embodiment of the great in miniature (for example, miniature copies of real mountain landscapes);
- consistent change of landscape sceneries as a personification of the variability of the universe;
- harmonious combination of scales of landscape sceneries and small architectural forms in a natural environment;
- seasonality of landscape sceneries.

A characteristic feature of China traditional landscape design is the symbolism of its elements – basic materials (water, stone) as well as individual species of plants.

It is noteworthy that water must move (whether a stream, or a small stream, or a river), because it represents a symbol of eternity, represented in the system of Chinese space as a continuous stream of being.

Fig. 1. Lingering Garden in Suzhou [photo by Maria Żychowska]

Fig. 2. The Master of Nets Garden (Wāngshī yuán) in Suzhou [photo by Maria Żychowska]

As for the stones, the landscaping of the garden was carried out with the least possible impact on the natural environment, as Chinese masters of the ideal landscape sought to preserve the natural terrain, adding only elements that were missing (according to the master, such as milling). According to Chinese ideas, the stone symbolizes the active principle of yang, and water – the receptive principle of yin. Connoisseurs especially valued such properties in stones as "permeability", "catch" of space and "openness". "Permeability" allowed to feel the created bizarre forms with voids inside that at once increased their aesthetic value. Another criterion for the aesthetic evaluation of the stone is the "caught" space of the cavity, because it was not the stone itself that was interested, but the emptiness inside it. These cavities, which are impregnated with even a stone block, even a small stone, leave an impression of lightness and elegance. The next sign is "openness", i.e. the beauty of cavities and holes in the stone, which would open it to meet the surrounding space.

The most common tree in the traditional Chinese landscape garden is the mountain pine – a symbol of longevity. Bamboo, which bends but does not break, is a symbol of tenacity. The wild meihua plum means hope in difficult times, as it blooms while it is still cold. Plum blossoms symbolize beauty and

splendor. It also means longevity, purity, renewal. The beginning of "yin" in the flower kingdom was represented by the chrysanthemum – an autumn flower, a symbol of peace and longevity. These four plants were considered the "perfect four".

In almost every Chinese garden you can find a peach – a "tree of happiness", which averts harmful forces. As for flowers, the most respected among florists is the peony, which earned the title of "king of flowers" in China. Among aquatic plants, preference was given to the lotus, which has a sacred meaning in Buddhism.

A specific phenomenon unique to Chinese culture is geomancy, referred to in China as "feng shui." In the most general form of feng shui could be described as the doctrine of the influence of energy (qi), emitted by various landscape forms of the earth's surface, on human life. The starting point in feng shui is the idea of a great triad: Heaven – Earth – Human, which is in perpetual motion, interconnectedness and interdependence.

Religious and philosophical principles of landscape design in Japan

Religious beliefs and philosophical teachings in Japan, as well as in China, had a strong influence on the formation and development of traditional landscape architecture and design. Although in the early stages of Chinese culture, philosophy and religion had a significant impact on Japanese culture, but over time, Japanese culture, including philosophy, religion, traditional landscape design began to show more regional features. Although Japanese landscape design shows some commonality with ancient Chinese landscape design, it has regional and national features.

The history of the development of landscape art in Japan has been formed since ancient times (the beginning of the formation of this state and its corresponding culture in literary sources dates back to about 3rd – 4th centuries) has a close, direct connection to this day with the spiritual culture of its own people. This connection, in our opinion, needs a separate more detailed consideration. Of special importance in the formation of the spirituality of the Japanese people as a separate, conservative, closed to the world for centuries until the end of the 19th century (or rather, until 1868), a separate community, is its religion – Shinto. There is no supreme god in this national religion, but the Japanese worship the forces of nature, animals, and, last but not least, the famous people who are included in the Kami pantheon. Unlike the religion of China, for example, the sky is not a deity, but a refuge, a place of permanent residence of Kami. Although Kami are kind, respectful by nature, the Japanese still find it necessary to keep their distance from them.

According to various sources, today there are about 100 million Shinto believers. In the pantheon of Shintoism, which, although it has no idols, there are, according to various sources, about 800 million Kami. That is why there is such a diverse and bright palette of traditions, rituals and holidays, which, incidentally, varies from area to area where the Japanese live. This is why the representatives of this country have such a respectful and reverent attitude to nature, to every animal, to every tree, stone, stream or flower, including famous people.

The formation of Shinto as a national religion was completed around the 8th century (by this time there was a unification and fixation of ancient traditions, formed a single mythology, introduced a corps of ministers with a "set" of necessary rituals, significantly increased the number of temples, etc.). But, no less important point for consideration of our topic – the history of landscape design – is that almost simultaneously with the formation of the national spiritual culture of Japan was "penetration" into its territory (somewhere in the 5th – 4th century) Chinese spiritual culture (which coexists with Japanese to this day).

Given that Shintoism was basically based on primitive beliefs such as totemism, animism, magic, etc. and, in terms of philosophical understanding of the world, theoretical abstract constructions were insufficient for a rapidly developing society, the penetration of Buddhism into Japan and, the so-called inclusion in the then Japanese spiritual culture made it possible to very quickly play a leading role and take a leading position in the spiritual progress of the country.

According to the famous scholar-theologian Michele Malherbe, "the whole history of the religion of Japan since then – these are trends that have changed each other in the direction of Buddhism, then in the direction of Shinto" [15, p. 238].

In different historical periods one or another cultural tradition prevailed. This state persists to this day. Modern Japanese believe very little in Kami (as evidenced by the number of believers), but do not seek any rational explanation for the existing rituals. For the Japanese, Shintoism testifies to their national unity, expresses their desire to maintain the harmony of life of the nation. Today, the "synonym" of Shinto is the "matsuri" – a holiday, that is, any public action, whether it is a celebration of sakura blossoms or a holiday of lilac blooms, when the Japanese rejoice in their existence.

It should be noted that the Japanese treated the new religion – Buddhism – much more seriously than their Chinese neighbors. Belief in spirits, in the afterlife, was widespread even earlier, which was reflected, in particular, in Japanese folklore. Therefore, in the Edo era (1603–1868), when Japan was in a state of self-isolation, national characteristics of landscape design were finally formed and rock gardens intended for Buddhist meditation became so widespread [12].

Fig. 3. Deers on the background of the torii gate [photo by Ivan Chornomordenko]

Fig. 4. Bamboo forest Arashiyama, Kyoto [photo by Maria Żychowska]

That is why in the history of landscape design in Japan we can observe the interpenetration of heterogeneous elements, various details, which indicate the interaction of both traditional and non-traditional sources of their formation. This is a kind of search and embodiment of the balance and equilibrium of different spiritual cultures, which are reflected, in particular, in landscape architecture.

The national Japanese religion – Shintoism – had a strong influence on the formation of traditional Japanese gardens, in the structure of which the legendary eight perfect islands and the lake of the gods – *shinchi* – were symbolically reflected. Shinto shrines dedicated to gods and spirits – *Kami* – could be found on the sea coasts and in the forests of the Japanese islands since prehistoric times. As a rule, natural elements were used as such shrines – large stones of an unusual shape or trees that stood out among the surroundings. *Shimenawa* (cords made of rice fiber) were tied on them, and the ground around them was paved with white pebbles or stones, which symbolized ritual purity. [20, p. 14 – 15]. A place that was cleaned and ritually cleansed in anticipation of Kami's appearance there was called a niwa. This word, among other synonyms, was later used to denote a garden. Thus, not only the main elements of the Japanese garden – hills, ponds and trees of unusual shape – but also the very name of the traditional garden is inextricably linked with Shintoism [34].

Thus, together it proves that the development of landscape art (landscape architecture, landscape design) was directly influenced by the traditional worldview based on Shintoism, although the division of Buddhism and Shintoism can be divided only theoretically. We think it is worth starting with the fact that Shinto sacred buildings/temples should be considered as ensembles, because they have a separate territory – the territory of the park/garden in which they are located. If you mentally virtually imagine a territory that has a conditional boundary and is not a territory that is separated by a high, strong fence or wall and the entrance to which is free, then such a space without material walls – this is what was said above from the philosophical religious point of view. On all four sides of the world – north, south, west, east – there are symbolic gates made of solid wood of the cryptomeria tree, which are called torii (Fig. 3). Such torii are painted red and symbolize the entrance to the territory of the Kami. If one of the sides of the park is girthed by a pond (lake, sea, river, etc.), the torii are installed directly in the water to warn a person who swims through that he enters the temple area runned by kanussi – "the master of kami".

The cult building, located in the depths of the park, built in the Japanese style, necessarily made of fresh wood (cryptomeria) and serves for about twenty years (until fresh resin is released from the resin, which fills the temple with its aroma), then the temple is dismantled, and hundreds masters again build the temple in a few days from new, fresh wood. The friezes of the pediments are decorated with artistic carvings; animal figures carved from wood.

A path paved with fine gravel leads to the temple, which is usually located deep in the park (this is intentionally arranged so that a person going to the temple could not move as fast as on the pavement, but walked slowly, understanding the purpose/ request/gratitude with which he wants to turn to Kami). On either side of the path leading to

the temple, every eight to ten meters, there are, like a watchtower, one and a half to three meters high, stone lanterns carved out of marble, which have through square or round openings from which light shines in the dark. from candles illuminating the path to the temple. Very much attention, as elements of a decor, deserve various finishing elements – live and inanimate trees (a tree-like azalea which blossoms with big flowers of different color, from red to pale pink, depending on a grade), spherical bushes, up to three meters in diameter a bushy azalea, which, thanks to mixed when planting different seedlings, blooms with colorful flowers, all kinds of flowering plants, which are located along a kind of stone boulder stream with numerous waterfalls and wooden bridges that connect the transitions from one bank to another, bamboo forests (Fig. 4).

The location of various plants, moss-covered stones, trees in the park is selected in such a way that there is something to admire in all seasons – it is also evergreen plants and shrubs, periwinkle and so on.

Compared to traditional Chinese gardens, the Japanese garden looks simpler and ascetic (Fig. 5).

It is also necessary to define the peculiarities of medieval Japanese landscape design, which were provided by the researcher of Japanese architecture Halyna Shevtsova in her monographic study. Among her main theses on the genesis and origins of Japanese landscape design, we will focus on the following [25, p. 128–130]. To the early stage of gardens formation in Japan, she attributes the following features:

- origin of the traditional Japanese garden from the flat, pebble-covered Siki grounds, which in Shinto personified the sacred territory of the deity's presence (as one of versions);
- arrangement of special ponds for boating in the privat and monastery gardens during Heian period (794–1185);
- symbolical meaning of the main garden elements in Buddhism (cult of Buddha Amida): the pond as the personification of the infinity of the universe, the island in the middle of the pond as the human world, sanctuaries on the west and east shores as symbols of "Western" and "Eastern" paradise.

During the Middle Ages, the structure of a traditional Japanese garden changed and became more complicated. Among the features of the medieval garden H. Shevtsova also names the following:

- diversification of garden types and their functions (similar happened with Chinese gardens);
- borrowing Chinese Zen Buddhist landscape traditions and their rapid transformation on local soil;

Fig. 5. A fragment of the temple garden of Tenryu Shiseizen-ji [photo by Maria Żychowska]

- change in the function of the reservoir: lakes are reduced and are not intended for water walks, but only for admiring the landscape;
- a new type are gardens on the hills, "tea gardens", picture gardens not for walks, but only for admiration (they were located along the veranda) and were fenced off on the opposite side by a fence;
- formation of "dry" or "rock" gardens on the basis of small sandy or pebble areas with geometrically placed natural stones, moss spots, several trees or shrubs in Zen Buddhist monasteries, which served for meditation and inner concentration);
- borrowing Chinese traditions of communication of Buddhist ink painting and landscape design of the temple garden in Zen monastic "dry" gardens, designed to awaken the imagination and connection with painting, but greater than China, laconicism of elements, modesty and emphasized monochromism, corresponding to the philosophical;
- special role of stones in Zen gardens: stone as a personification of the staticity of the universe and the variability of the human world (Fig. 5).

Among the most famous gardens of Japan H. Shevtsova names the gardens of the temple Byodo-in and Dzyoruri-ji from Kyoto Prefecture, the gardens of the temples Ginkaku-ji and Kinkaku-ji, the garden of the temple Ryoan-ji, the gardens of the temples Daisen-yin, Obai-yin, Ryogen-yin Daitoku-ji monastery.

Results

Despite the religious syncretism characteristic of both China and Japan, which was formed as a result of the addition of traditional religions (Shintoism in Japan), religious and philosophical teachings (Taoism in China), and philosophical teachings (the teachings of Confucius in China) with various branches of Buddhism, it should be noted that the difference in the religious and worldview sphere in China and Japan (at least during the

TABLE 1
Tradiitional gardens in China and Japan: differencies and commonalities

Country	Differencies	Commonalities
China	From the very beginning, a garden was interpreted as an ideal embodiment of a place of pleasure, so it is rich in many components that form clearly defined landscape sceneries.	The religious syncretism of Buddhism and local animistic beliefs, where the deification of nature plays a prominent role, had a decisive influence on the concept of a traditional garden. Landscape sceneries of gardens have not only aesthetic, but above all hidden sacred significance.
Japan	A garden is based on examples of asceticism, cavity aesthetics and is designed for meditation, so it uses a much smaller list of elements, and the garden itself has a more monochrome character.	

formation of the canons of traditional landscape design).

If the Chinese diligently performed numerous external rituals and paid little attention to spiritual practices based on meditation, such practices became much more widespread in Japan. Such a difference in the national worldview is the reason that the traditions of landscape design, which were successively borrowed by Japan in China in different eras of development, changed quite quickly on local soil.

Functionally, this manifested itself, in particular, in the appearance in Japan the garden types created primarily for meditation – rock gardens and tea gardens.

Thus, the teachings of Confucius in China – on the one hand, and the traditional religion of Shintoism in Japan – on the other, formed a significant difference in the worldviews of the nations. If an average Chinese was mainly focused on earthly existence and had little interest in both spirits and options of the afterlife offered by the main religions, then the Japanese, on the contrary, showed the ability to be much more interested in the afterlife and, therefore, in internal self-improvement and meditative practices.

Ultimately, the specific features of national Japanese landscape design were formed in the Edo period (1603 – 1868), when the country was in self-isolation, which allows us to conclude that there is a direct connection between the limitation of external contacts and the concentration of regional features and features of national identity.

A comparative analysis of the gardens of China and Japan allows us to identify commonalities and differences between them (Table 1).

Despite the similarities in certain techniques of traditional landscape design in China and Japan,

Fig. 6. Lingering Garden (Liu Yuan) in Suzhou [photo by Maria Żychowska]

there are noticeable differences between them, in addition to those already mentioned. For example, a garden pond and an island have another symbolic meaning: in China they symbolize the cult of the immortals living in the mountains, in Japan the pond represents the infinity of the universe. In Japan, the island in the middle of the pond symbolizes the human world, and the symbols of "Western" and "Eastern" paradise are sanctuaries on the west and east banks.

In China, too, the "dry" stone gardens inherent in Japanese Zen traditions have not become widespread, and their gardens create a festive uplifting mood (Fig. 6).

This allows us to conclude that in traditional landscape design, as well as in folklore, traditional painting, music, etc., the peculiarities of the national mentality are quite vividly reflected.

Conclusion

As a result, the authors departed from a detailed description of specific gardens and generalized and concentrated those features that are associated with traditional Chinese and Japanese gardens and are similarly positioned by the population of these countries. Accordingly, the study was complemented by the analysis of those examples of gardens that are positioned as part of traditional culture – national landscape design (Lingering Garden ((Liu Yuan) in Suzhou, The Master of Nets Garden (Wǎngshī yuán), Bamboo forest Arashiyama, Kyoto, Tenryu Shiseizen-ji). Therefore, the main task of the research was to move from the level of specificity (description of landscape techniques of a particular garden) to the level of generalization (a list of the main features-expressives of national culture) with a further comparison of these generalized features. It was argued that the gradual departure in the gardens of Japan from hedonism of Chinese gardens towards minimalism and asceticism, which was determined not only by the religious school of Zen Buddhism, but also by cultural, natural-climatic and economic features.

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Development and Evolution of Palmette Ornament: An Influence on Islamic Architecture

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Abstract. Decorative architectural ornaments are the mainstay of several art forms. Islamic architecture had several properties and characteristics, including the non-depiction of living beings and emulating God's creation of wrongdoing. Therefore, floral, geometrical, and vegetal motifs became the main component of Islamic architectural ornaments. Similarly, Palmette is included and practiced on a large scale in Islamic architecture due to its vegetal or floral forms. This article focuses on the historical aspects of palmette ornament. Additionally, it explores the development and evolution of the ornament from west to east. Moreover, how palmette ornaments are practiced in Islamic Architecture. For this purpose, historical approach of description is used to explore and analyze the palmette ornament in depth.

Keywords: Palmette, Architectural Ornament, Islamic Architecture, Islamic art, Decorative ornament

Decorative Art: Significance of Ornament

The importance of ornamentation in all monumental and architectural components, including domes and minarets, is what defines Islamic architecture as a whole [26]. The beauty of the ornamental embellishments governs every component it is based on [19]. Islamic decoration has traditionally been built on vegetal or floral ornaments.

The enrichment or embellishment of an object by the deliberate altering of its form or color is known as decorative art. The form elements are known as motifs when decorating is achieved via the repetition or combination of particular form elements following a preset scheme [8]. They are referred to together as ornamentation. Pure ornaments are formed when the decorative element takes center stage in the design. As a result, decorative art is largely what can be employed effectively in a certain setting. It is impossible to distinguish clearly between decorative and ornamental art. Depending on how it is utilized, a sizable amount of ornament can be classified in one of two ways. In many instances, the functions of ornamentation and representation are so evenly matched that either function may be chosen. Every piece of ornamental art is either symbolic or aesthetic [29]. In symbolic art, forms are primarily chosen for their significance, whereas in aesthetic art, forms are solely chosen for their beauty. No piece of work can be properly assessed in terms of whether it should be viewed as appealing to knowledge or taste [36].

While Greek and Roman decorations are solely ornamental, that of the Egyptians and Assyrians is essentially symbolic. The ornament should complement the design of the item, it is used to embellish rather than take over its appearance [28]. Ornamentations depend on the shape of the thing it decorates, but it also depends on the type of material and construction method utilized. Therefore, ornamentation is never solely on personal desire or whim [31]. As a result, there is a close connection between material, function, form, style, and the art of decoration. Early patterns had a geometrical design and were made up of little circles, bands, straight and curved lines, and so on. Natural or artificial ornamentation is aesthetic. Natural or imitation ornament is the recreation of forms exactly as they appear in nature so that they are the primary element rather than the second element as they should be in flawless adornment [11]. The alteration of natural features by simplification or exaggeration to make them more palatable or captivating when replicated is known as a conventional or stylized ornament. The components of creative ornaments are not derived from any natural source. Every culture has unique characteristics in its ornamental expression, just as every artist or painter has particular quirks or traits that set their work apart. These traits, which make up style, are fascinating since they show features of the various people's personalities, beliefs, and customs. Each tradition or culture does have distinctive ornamental features that can be categorized as a style and given a name [21]. When it is realized that each period ad developed from the one before it, the ornamental style is much simpler to comprehend. Every age's ornament may almost always be linked to an earlier culture. When a style is established, each culture gradually incorporates new forms and traits that are uniquely on its own. Because some styles are only variations of others, not all styles are equally important. The Egyptian, Assyrian, and Greek

Fig. 1. Egyptian Deity, Ra and Palmette [from authors private archive]

ancient styles are the ones with the most recognizable traits while Roman art is merely a variation of Greek art [40].

Palmette: An ornament

A palmette is a decorative, ornamental, radiating floral design that, at its most basic level, is typically taken from a palm leaf or the petals of a flower, such as a lotus. Palmettes have been used as a design element in pottery, art, carpets, architecture, and relief for thousands of years. Initially, depicting the plant from the front or the side, these designs gradually developed to show the inside of the plant from the top down or even in two halves [12]. Because the plant's reproductive components were frequently on display, researchers assumed the palmette also had something to do with fertility or symbolize fertility. The palmette ornament has seen several revivals throughout the ages [29].

A distinct Greek adornment is a palmette. A set of narrow, whole leaves that are odd in number are arranged to form a symmetrical ornament, much like the fingers of an outstretched hand. The largest leaf is in the center, while the other leaves get smaller as they get closer to the sides. The leaf tips are arranged in a predictable curve. The lower ends of the leaves often arise from a tongue-shaped leaf and are separated from one another at small intervals. In this ornament, the delicate sensitivity of Greek artistic inspiration is expressed strikingly [35]. It is used in a variety of contexts, including palmette borders, antefixes as well as cornice ornamentation. Greek architectural friezes and the ornamentation on their vessels, palmettes are a common theme.

At the feast of Osiris, the Egyptians used palm leaves or branches; at the Olympics, the Greeks used them; and in triumphal processions, the Romans utilized them. Palm leaves stood for victory and peace [13]. The Assyrian sacred trees' main component and terminal decoration was a palmette. There is some disagreement over whether the Assyrian palmette is a lotus or a palm tree because of how similar they seem [32]. According to Hamlin, it was modeled after the Egyptian lotus palmette but was given more attention to detail [16]. The single sacred tree was intended to represent the palm tree, hence the palmettes that make up the design are in the shape of a palm tree but were originally lotus palmettes. From Terminal Palmette 1580 B.C. onward, the Egyptians included the palm motif throughout their capitals [17]. They also created a cornice that resembled a fence made of palm sticks. The barrier was made of upright palm sticks with only the tops of the leaves remaining. The bushes on top were designed to deter anyone from scaling them and entering the courtyard. The upright stick was fastened at the top with a rope or cross-stick, and more palm sticks were then woven into the lattice design at an angle to strengthen the barrier. Finally, the area up to the tie level was covered in muck. Even more intriguing is the fact that the earliest depictions of cornices are seen in architectural representations with cross-sticks exposed [39].

Review of Literature

Ancient Egypt is where the palmette first appeared. It probably started as a straightforward papyrus, lotus, or lily design, but as the Upper and Lower Egyptian Kingdoms combined, it evolved into a symbol of unification or rebirth [27]. The lotus flower's petals are frequently linked to literal, figurative, or spiritual life, death, and rebirth. The palm tree finally emerged from the design, with its radiating leaves appearing to light out from its center in a reference to the sun.

In architecture, the palmette was frequently positioned at the top of doorways and it also resembles the crown of the Egyptian sun deity, Ra (Fig. 1). The palmettes also included a big disc between two trees or mountains as a representation of the sun. The purpose of this was to demonstrate how the sun rises between mountains or trees, and the same pattern was used above arches for the same purpose. In some representations, the palmette resembles a halo in its most basic form. The palmette was also the foundation for several other related design motifs employed by the Egyptians, such as the Tree of Life motif, which featured a tree that had been cut in half [22].

The palmette's ornament originated in Egypt and eventually moved around the Mediterranean, naturally making its way into Greek architecture [18]. It also got a new name since the Greeks used to call the pattern an anthemion, which came from the word for flower in their language. The palmette is a distinctive feature of Greek architecture that can be seen both singly at the top of columns and continuously arranged on a building's cornice [29]. Greek palmettes first appeared in pottery but later found their way into the monumental building, a custom that was carried over to the Romans. The widespread use of this emblem by early Christians in Rome served as inspiration for their clandestine iconography, and the palmette eventually appeared in Christian construction. The Greeks would intersperse and support depictions of

Fig. 2. Greek architectural Anthemion, Palmette [from authors private archive]

heroes and great exploits on their amphora using various anthemion forms [34]. However, the placing of the anthemion on many Greek buildings' border molding, columns, and doors was almost always done ritually (Fig. 2). Greek architectural friezes and the ornamentation on their vessels' palmettes are common.

The palmette style, or anthemion as it was still known, traveled from Greece to Rome. The Romans developed the pattern further by including culturally significant components like wreaths and garlands [35]. The anthemion became a symbol of metamorphosis, death, and life as well as victory. Occasionally, the V shape of plants was added as a symbolic representation of Hermes or Nike's wings, the goddess of victory (Fig. 3). Although it was frequently used to remember death, it was typically a death in triumph. The palmette never conveyed a concept of defeat. Rome's favorite floral motifs, wreaths, and garlands were commonly coupled with palmettes. In addition to this, the palmette was frequently used as a victory sign. An underground Rome populace began integrating this well-known image of victory and death into their iconography in the first century CE [41]. The palmette motif appears most frequently in the fan-shaped foliage of palm trees in ornamental art. It has a long history that originated in ancient Egypt and has developed through the majority of Eurasia's artistic creations, frequently taking on forms that are not identical to the original [35].

Fig. 3. Roman Palmette, Hermes or Nike's wings, the goddess of victory [from authors private archive]

It was also referred to as the anthemion in ancient Greek and Roman cultures. Although it appears in a variety of artistic mediums, it is most frequently used as an architectural ornament in pottery, sculptures, and paintings. It frequently affects how a frieze or border is designed. Alois Riegl first described the intricate development of the palmette in his 1893 book Stilfragen [29]. Another extensively used pattern that comes in a variety of changed and modified forms is the vertically divided half-palmette. It significantly aided in the growth of plant-based scroll decoration. The palm fronds more closely mimic the petals of the honeysuckle flower in the recurring border design known as anthemion, as if designed to draw pollinating insects [9]. The fan of palm fronds can resemble either a man or female face when placed in appropriate architectural locations, such as at the top of pilasters or herms, and the volutes frequently resembled faces. In some configurations, the palmette itself begins to resemble a face with more facial features. The palmette, a couple of volutes at the bottom of the fan, is what sets each of these forms apart.

Findings

Vegetal/ botanical Ornaments in Islamic Architecture: Justification

Islamic architecture exhibited a variety of traits, such as diversity, unity, a distaste for emptiness, and a distinct lack of imitation and mimicry of God's creation [12]. Because Islamic ornamentation is blameless, its essential components include

calligraphy, vegetal patterns, geometric designs, and figural representations. Numerous references to trees and their benefits as well as plants and their allusions to Allah's strength and exclusivity may be found throughout the Holy Qur'an. This is yet another element that influenced Muslim artists' fascination with floral ornamentation. The Qur'an contains many verses about plants, and drag performers have devoted a lot of creative time to flora. This passage exhorts people to consider the magnificent qualities of these plants and to take in their beauty since beauty satisfies the spirit. Muslim artists and architects considered vegetation patterns to be abstract and far apart from the natural world and urged them to expand their understanding to incorporate temporal materialism rather than limiting it to things that could be seen from the outside [33].

Islamic architecture frequently uses floral or vegetable embellishments because human and animal images are rarely utilized in Islamic art or ornamentation because they are considered to be idolatrous. In reality, Islam destroyed idolatry, which was a manifestation of paganism. While figural images persisted in several artistic works, including wall paintings and sketches, the Holy Qur'an and mosques' decoration remained devoid of any depictions of people or animals [6]. Leaman postulates that Islamic art is exceedingly ornamental and the artist's restricted space is fully utilized, there may be a dislike of empty spaces in Islamic art. The use of geometric and floral ornamentation serves to facilitate this since it allows for the display of more distinctive shapes and spatial concept combinations [23].

Historical records revealed that the regions that Muslims invaded already had rich creative traditions and skilled artists, who continued to create works in their original forms, even under Muslim rule. These traditions were in place during the Sassanians' and Byzantines' rule [37]. These earlier works of art, therefore, had a significant influence on early Islamic masterpieces, especially architecture. Islamic art underwent numerous changes as a result of its dominance over large geographic areas and long-term consistency [6]. Even though Muslims at the time came from a variety of ethnic and cultural origins, Islamic art contains common characteristics. Vegetal patterns, one of the basic ornamental themes, were utilized alone or in combination with other significant types of ornamentation to decorate even structures or mobile works of art. Islamic art had its unique characteristics, such as a modified artistic technique that originated in the fourth century to twelve centuries with intertwined floral branches and crossed ones with pendulous blossoms that had neither beginning nor finished. European historians labeled this tactic as "arabesque" and referred to it accordingly. For example, floral and

Fig. 4. An Assyrian sacred tree, Palmette Ornament [from authors private archive]

vegetal ornamental themes appeared in Iraq and Iran during the Safavid era. It then spread to the other Islamic nations during the Ottoman era via the European control of the majority of the Balkan Peninsula [38].

Palmette Ornament: Evolution

As was already mentioned, the palmette, which is thought to have originated in ancient Egypt around 2,500 BC, has influenced Greek art. Papyrus and lotus or lilies, which represented lower and upper Egypt and their peaceful union, were two flowers whose qualities were initially included in Egyptian palmettes [30]. They only commence getting connected to the palm tree afterward. Given that the sun and this object have always had a tight relationship, this is most likely an early instance of the halo. This was one of the earliest types of palmette in ancient Egypt. This evolved into a further, more refined shape that is like those found in ancient Greece. The Assyrian sacred tree's main component and crowning decoration was a palmette [20].

Due to how similar they appear, there is some debate about whether the Assyrian palmette is a lotus or a palm tree. Hamlin asserts that despite being modeled after the Egyptian lotus palmette, it was made using the intricate details of the palm tree (Fig. 4). The one sacred tree was intended to stand in for the palm tree, hence the palmettes that make up the design are lotus palmettes that resemble palm trees. The Egyptians used the palm design on their capitals starting around 1580 B.C. They also constructed a cornice that resembled a palm-stick fence [42]. Only the tops of the upright palm poles used to construct the fence were draped in leaves. To prevent anyone from climbing them and accessing the courtyard, the tops of the bushes were planted there. More palm sticks were then woven into the lattice pattern at an angle to strengthen the barrier after the upright stick was secured at the top with a rope stick. Not to mention, it was caked in muck up to the tie level. The cavetto cornice shows the curved tips of the palm fence (Fig. 5). The fact that the earliest renderings of the cornice are on architectural models with cross sticks exposed makes this even more remarkable. The stylized fan-

Fig. 5. Cavetto Cornice Palmette [from authors private archive]

Fig. 6. Hapi god Palmette Ornament [from authors private archive]

shaped leaves of the palm were shown in the anthemion. The Greeks used this pattern in a variety of ways.

Another kind depicts a collection of papyrus or lotus petals, each with a dangling bud or bloom, emerging on tall stalks from a (primal) swamp. The papyrus and lotus clusters are linked to Happy, the god of the significant seasonal Nile flood (Fig. 6). Happy recreate the patterns of the horizon's "akhet" by weaving the plant stems of these interlaced around an incense table in the same-Tawi fashion. Several monarchs were provided with this cohesive storyline, which claimed that they had kept control over the powers of renewal by maintaining harmony between the two Egyptian countries [32]. The second implication is that this purportedly mystical and magical source, the undivided source, is where replication and the birth of new life occur.

A single lotus bloom, which is usually utilized to provide aroma, is positioned between two upright buds in another variation of this design. Such a lotus represents Nefertem, the god of fragrance, or Nefertem is seen wearing a lotus as his crown. Strangely, date palms are regularly depicted in the same inventive way on Egyptian tomb walls and staged garden settings, with a cluster of dates cascading down on either side below the crown at the same place [24]. Palmettes and anthemion are two ornamental themes found in classical architecture [14].

Palmettes have several rounded, incised, and grooved lobes, the lowest of which is bent into volutes. The half palmettes, whose ends continue to develop into further palmettes, are a distinguishing aspect of the scrolls since they do not serve as a concluding theme, but rather are an essential component of the scroll itself. A succession of whole and half palmettes forming a continuous scroll define the Islamic arabesque. This kind of palmette was unheard of in East Christian paintings [30]. To discover models for the palmette ornament on the aforementioned capitals, we must look to Sassanian art. To demonstrate the significance of Sassanian art for the evolution of Islamic style, the Sassanian material that Riegl and Strzygowski had at their disposal was insufficient at the time. Recent Sassanian site excavations, like those at Damghan in Persia, Kish in Mesopotamia, and Ctesiphon in Baghdad, have produced a wealth of adornment that is extremely important to scholars of Islamic and medieval art. The development of an abstract, faux-floral adornment based on Assyrian and Achaemenian traditions, which eventually replaced the naturalistic inclinations of Hellenistic art with Oriental principles of rhythmic repetition and symmetry, must be credited to Sassanian art. Arched stems or bands were used to unite the palmette, which was once again the dominant theme in ancient Oriental art, merely for ornamentation. Sassanian palmette decorative influences may be seen in the old, dated instances of Islamic art. The Umayyad bronze tie beam at the Dome of the Rock contains irregular scrolls that show stems that have been replaced with half-palmettes [25]. Half-palmettes created more or less distinct S-links connecting different patterns, which prevents the arabesque character from being completely developed. In other instances, the continuous design and split palmettes evolving into other half-palmettes give the scrolls' arabesque character a stronger presence.

Islamic Ornamentation and Islamic Architecture

It seems obvious that Islamic ornamentation and Islamic architectural decoration are linked with each other. Islamic ornamental patterns decorated with exceedingly intricate embellishments can draw attention to religious structures like mosques.

Regarding the relationship between an artist's or architect's simple aesthetic drive and their religious or spiritual motivation, as well as whether or not Islam as a religion significantly influenced Muslim architects, Hillenbrand claims that such inspiration was not overtly acknowledged. However, it appears that several factors contribute to the aesthetic of Islamic ornaments, such as a feeling of hierarchy, a willingness to use symbolism, a love of opulent ornamentation that serves purposes beyond the mere exhibition, and a tendency to use color [1]. Al-Faruqi notes that depictions of transcendental concepts as well as actual figures from nature were

unacceptable for Muslims [2]. By reminding Muslim artists of the necessity to establish numerous art forms and structural procedures for the construction of extensive designs and motifs, Tawhid (the Oneness of God) dictated the fundamental significance of Islamic artwork. The intricate and minute details, the segmentation into components, and the organization into successive modular arrangements are the fundamental elements that define "Islamic" art. The influence of the Tawhid also seems to be present in Islamic adornment and art. The Muslims typically view God-centered aesthetics and beauty as lovely and appealing. According to Burckhardt, as architecture impacts the human environment, it holds a fundamental place among the arts and is analogous to the Islamic baraka [10]. (blessing). Al-Aloosi asserts that it plays a unique and significant function since Muslim architects contributed their aesthetic features to Islamic architecture, perhaps to experience a pleasure. In the Islamic era, architectural decoration flourished and developed characteristics that define it in terms of design, artistic production, theme, and style [3]. Painting and drawing on stucco was a part of the creative creation, either through direct engraving or mechanical molding. It was typical to employ mosaic and vibrant stone for engraving on stone and wood, whether in the smooth, flowing style or the perforated style where the ground was emptied. Several plant-related motifs, such as stems, single, double, and interwoven branches, leaves that were whole, in half, clustered in twos, threes, or fives, or perforated, palm leaves, and a variety of fruits, served as the inspiration for architectural embellishment.

The broad surfaces of a building might occasionally be covered with decoration, which can be separated into smaller portions, according to Dakhel, who researched the relationship between Islamic ornamentation and Islamic architecture [4]. To achieve visual grandeur, they can disrupt continuity with their numerous little elements, giving the building's exterior the appearance of two identical designs. The first is an architectural design with obvious crossing lines and lines flowing clearly in perspective, whilst the second is an ornament with fine and detailed lines. The generality and simplicity of the design are therefore merged with the distinctiveness and exquisite aesthetic nuances through the correspondence of the two images. The fact that Muslim architects create the art of decoration and adapt it to fit their grand, permanent structures struck me as particularly noteworthy. As a result, ornamentation becomes a crucial instrument for the architect to improve his creativity, emotions, and expression. Before he began to create it, the architect most likely employed decorating for the first time to express his feelings and views. By guiding people's intentions, both within and outside of structures, ornamentation is essential to the structure of architecture and may contribute to its psychological impacts [15]. This is because ornamentation and architectural forms catch the attention of the spectator and draw their attention to specific architectural features, just as the architect intended. Another significant element worth noticing is the similarity between Islamic and Western architectural adornment in terms of the enjoyment we, as viewers, gain from seeing them. According to Graham, a building that serves only as adornment has been created with the sole intent of being viewed and enjoyed and is hence closer to sculpture. The approach is intended to exclude motives like admiration and enjoyment because they are not utilitarian. Graham claims that eighteenth-century embellishments are parasitic, such as the follies present in many formal landscapes. They are charming replicas of structures whose primary functions were not to amuse [7].

Conclusion

The Islamic religion forbids the carving or painting of human or animal figures, thus vegetative patterns have become increasingly important in Islamic art. As a result, vegetal motifs were an excellent substitute. Byzantine and Sassanian art both had an impact on the vegetative patterns used in Islamic art, such as grape leaves, palm trees, and acanthus leaves. Due to the reverence of palm trees for being revered and mentioned numerous times in the Qur'an, they have dominated other floral patterns. And so, the desire to represent it might be equivalent to highlighting both its aesthetic beauty and its religious significance. The palm tree was sometimes portrayed in Islamic art in an altered state and other times it appeared vibrant and took on a much more natural shape. Different types of palm trees, including half-palmettes and palmettes, were portrayed. Additionally, models from the Ottoman era included palm trees with bunches of dates. The accuracy with which different floral themes are applied reveals the Muslim artist's artistic sensibility and capacity for creativity.

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Kopsavilkums. Dekoratīvie arhitektūras ornamenti ir vairāku mākslas veidu pamats. Raksts koncentrējas uz ornamentu vēsturiskajiem aspektiem. Turklāt raksts atspoguļo ornamenta attīstību un evolūciju no rietumiem uz austrumiem. Rakstā tiek izmantota vēsturiskā apraksta pieeja, lai padziļināti izpētītu un analizētu palmetes ornamentu un to attīstības posmus.