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Research Article

Evaluation of current landscape architecture approaches in chosen cities in Poland and Slovakia

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The Paper presents analyses of the strategies and projects that have been implemented and realised in landscape architecture, environmental protection, and sustainable design in the chosen cities in Poland and Slovakia. There are several levels of evaluation: the first one is policy approach (which includes strategic documents, conceptions, plans which have been elaborated), the second one is the level of landscape design and sustainability (including architectural competitions and project realisation) and the third one is public participation (involvement of the public in urban planning, bottom-up initiatives, support of the communities). Ten cities in Poland and ten cities in Slovakia have been chosen. (The Paper brings an overview what are the current topics, with a great emphasis on what are the trends in landscape architecture and what are the obstacles, which need to be overcome.

Keywords: landscape architecture, climate change adaptation, well-being, trends, sustainability

1 Introduction

Increasing human development and concentration of population in the urban areas is closely related to the quality of citizens´ lives, safe and clean environment, and adaptation to extreme climate conditions in the cities. During the 20th-century strategies related to greenways, ecological design, sustainable development of cities have been elaborated (Supuka, 2008; Mandziuk et al., 2021a). Sustainable shaping of green areas in cities is supported by scientific research, connected with the current policy of the European Union and supported by the local governments and residents of cities. Adaptation measures for climate changes have been emphasized in the last decades of the 21st-century. An increasing number of days with tropical temperatures, urban heat islands, floods in the urban and rural areas (Kousis, Pigliautile & Pisello, 2021) caused the necessity of different approaches also in the landscape architectural projects (Seckin, 2018; Mabon and Shih, 2021). In recent years water in the city has been attracting increasing attention from the urban planning point of view. Water in all its forms and types has been brought into the city to improve the quality of urban life. Rivers are being redesigned to become an interplay between ecology, flood protection and amenity (Prominski, 2017). Green roofs and vertical gardens also help to manage the rainfall run-off. Over the past decades, the development of new materials and construction technologies has helped to maximize the benefits of these systems (Hubačíková, Marková & Dimitrova, 2020).

Materials and products for sustainable sites are those that minimize resource use, have low ecological impacts, have no or low human and environmental health risks and assist with sustainable site strategies (Calkins & Ap, 2009; Mandziuk et al., 2021b).

Grimm-Pretner (2018) underlines incorporating innovative solutions, design with nature-based solutions and multifunctionality for open urban spaces, with highlighting follow-up of realised projects.

When we look at the popular landscape design approaches, every decade has its own style, rooted in the social and economic status of the world. The following topics could be considered as trends in Landscape Architecture design during the last few years.

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Flemming (2021) has published the following list of trends in landscape architecture design for the year 2021:

1. Well-being landscapes – the impact of the Covid-19 pandemic on our mental and physical health during the last 2 years clarified that open green spaces are the most valuable and safe places to meet family and friends.
2. Re-designing the street – prioritizing the pedestrian movement over the vehicular traffic and also due to climate changes, the streets have the potential to become greener and safer.
3. Outdoor living – the creation of outdoor living spaces as an extension of the indoors.
4. Planting to reduce air pollution – trees can clean the air and absorb harmful airborne particles, gaseous pollutants and toxins through their leaves, bark and roots.
5. Investment into local public parks – local public parks and their accessibility to vulnerable groups of the population, have never been as important as during the last 2 years.
6. Smart use of space – the space should be designed wisely to fulfil the required functions, it should have appropriate aesthetic qualities and it should be easily accessible.
7. Grow your own initiatives – many people became interested in growing their own food.
8. Stormwater management – can reduce run-off of rainwater into streets sewerage and keep it where it drops in order to slowly infiltrate or evaporate or for other uses.
9. Nature-based solutions – bioecological network supporting biodiversity.
10. Smart technology in the landscape – applying smart technologies in the cities and open spaces.

Smart cities are green, innovative, friendly, inspiring and digital. Smart cities properly use modern technologies to invoke the synergic effects between various subsystems regarding energetic intensity and quality of life of the citizen (Svítek & Postránecký, 2018). In 2017 and 2018 there was an international project supported by the Visegrad fund which evaluated chosen cities in the Czech Republic, Hungary, Poland and Slovakia in terms of smart solutions in the spheres of governance, environment and alternative energy and public involvement (Óhegyi et al., 2017).

The Paper aims to bring an overview of the importance of urban greenery development and improvement of the quality of urban open spaces from the point of view of the city municipalities. We have evaluated what kinds of strategic documents, guidelines and standards have been elaborated by the City Hall and what types of landscape architectural projects have been realised. This research also brings an overview of the trends in the field of landscape architecture in Poland and Slovakia. We have tried to find some similarities and differences.

2 Material and methods

The selection of cities in both countries was based on differences in numbers of the population, so that it would be possible to make a cross-section of implemented landscape architecture projects, of existing strategic documents or active approach of the city government to improve the living conditions of the inhabitants of their city. We have also tried to represent various environmental and natural conditions in Poland and Slovakia.

In the first step, the evaluation took place at the level of self-government management (evaluation of the presence of relevant departments dealing with urban planning, landscape architecture or strategic greenery management.) We have also searched for documents related to improving the lives of the city's inhabitants, strategies on adaptation to climate change, or published guidelines, standards and manuals regarding designing of the public open spaces and greenery management (Table 1a, b).

The next step was a field survey of implemented projects (Table 2a, b). One realised project has been selected and assessed from the following points of view:

1. Quality of landscape architectural design, with taking into account the functional and spatial possibilities and needs of the inhabitants.
2. Suitability of the solutions in the area, support of the *genius loci* of the space.
3. Technical realisation of the project.
4. Selection of materials, mobiliary and other elements.
5. Greenery (species and cultivars of trees, shrubs and flower compositions).

We have collected the data from the official web pages of the cities, from social networks platforms and the interviews with the city representatives. The evaluation has been done between June 2021 to November 2021. Chosen landscape architectural projects, which were evaluated, have been realised during the last 10 years.

3 Results

3.1 Evaluation of chosen cities in Poland

Warsaw consists of 18 city districts. Each district has its own self-government which means that also way of development of the districts varies. There is almost 110 m^2 of green areas per one inhabitant of Poland's capital. The Old Town of Warsaw is listed in the UNESCO World Heritage List. Warsaw is one of the most dynamically

developing European cities with great potential and extraordinary vibe, its inhabitants often refer to its history and are very skilfully able to combine tradition with modernity. Green areas cover almost half of the city's area. There are as many as 95 parks, a lot of squares, gardens, pocket parks, parklets, green tram lines. Some buildings have gotten vertical, green walls, roof gardens, which are very important for the microclimate of the city. Revitalization of green areas and projects of new green areas were realised every year in Warsaw.

Wrocław – is also rich in green areas, from parks to forests and Natura 2000 areas. Green areas in the city accounted for 4.8%, and forests for 7.6%. There are many small areas of greenery, such as the Japanese Garden nearby the University of Technology. There are also many larger valuable areas such as the Bystrzyca Valley Landscape Park, Las Pilczycki, Strachociński or Rędziński. Not only are these areas beautiful in terms of nature, but they are also a habitat for many species of plants and animals. New squares, parks, pocket parks are established every year.

Kraków – a lot of types of green areas occupy about 150 hectares of the city. Other green areas include road lanes, green areas, water greenery, greenery accompanying sports grounds and fortress greenery with a total area of approximately 3.111 hectares. Nowadays many pocket parks, parklets and green walls, which are all very important to minimize the negative impact of urbanization/ anthropogenic impacts, can be found in Kraków.

Rzeszów – In the ranking of green cities prepared by the portal rynekpierwotny.pl Rzeszów came second among

Table 1a Chosen cities in Poland and Slovakia and the list of strategies, methodologies, documentation and realised projects

Poland																			
City	Number of inhabitants	Density (inhabitants.km^2)	Strategic documents						Landscape design projects realised within last 10 years								Specific department at city hall related to landscape architecture	Participation in the national and international projects	Public involvement	Bottom-up activities (activities of the people or NGOs)
			urban city plan	spatial system of ecological stability	register of the greenery	smart city strategy	adaptation strategy for climate changes	public spaces design manual	central city zones (squares)	city parks and recreational zones	open spaces in housing estates	pocket parks or small interventions	special types of greenery (schools, hospitals, senior houses...)	rainwater management projects	biodiversity support	urban development				
Warsaw	1,765,000	3,800	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Wrocław	638,659	2,192.23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kraków	766,683	2,386	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rzeszów	183,901	1,528.5	x	x	x	x	x	x	x	–	x	x	x	–	x	x	x	x	x	x
Olsztyn	173,718	1,938.7	x	x	x	x	x		x	–	x	–	–	–	x	x	x	–	x	x
Przemyśl	60,442	1,294.4	x	x	x	x	–	–	–	–	x	–	–	–	x	x	–	–	x	–
Jelenia Góra	78,335	717.2	x	x	x	–	–	–	–	–	x	–	–	–	x	x	–	–	x	–
Tarnów	107,045	1,474.8	x	x	x	x	x	–	x	–	x	x	–	–	x	x	x	–	x	x
Łódz	696,708	2,278	x	x	x	x	x	x	x	–	x	x	x	–	x	x	–	–	x	x
Kalisz	101,307	1,427.6	x	x	x	–	x	–	–	–	x	–	–	–	x	x	–	–	x	–

the 66 largest cities in Poland. The main criterium of the evaluation was the share of parks and green areas (13.4%) in the city's total area, excluding forests.

Olsztyn – is not a "City-Garden" but it could be changed. The real importance of greenery should be recognized and its planning, maintenance and continuous development should be systematically arranged.

Przemyśl – many different types of greenery have been developed here, for example: protecting green belts allotment, recreation parks, remediation greenery, green areas nearby hypermarket and adjacent to housing estates.

Jelenia Góra is characterized by the large diversity of green areas, resulting mainly from the specificity of its location among the surrounding mountains and hills. Currently, the area of the maintained urban greenery of Jelenia Góra covers almost 100 hectares, including 8 city parks and numerous squares, and also small green areas. A specific group of green areas are municipal playgrounds (currently 29). Parklets are also used as a new type of green areas in the city centre.

Tarnów – green areas in Tarnów accounted for 6% of the city's area (i.e. 55 m^2 of greenery per one inhabitant of Tarnów). Revitalization of Strzelecki, Sanguszki and Piaskówka parks has been realised. Sensory gardens with herbs and natural plants were created last year. A new project was done in the city centre. Now we can use new parklets along the promenade.

Table 1b Chosen cities in Poland and Slovakia and the list of strategies, methodologies, documentation and realised projects

Slovakia																			
City	Number of Inhabitants	Density (inhabitants.km^2)	Strategic documents						Landscape design projects realised within last 10 years								Specific department at city hall related to landscape architecture	Participation in the national and international projects	Public involvement	Bottom-up activities (activities of the people or NGOs)
			urban city plan/masterplan	spatial system of ecological stability	register of the greenery	smart city strategy	adaptation strategy for climate changes	public spaces design manual	central city zones (squares)	city parks and recreational zones	open spaces in housing estates	pocket parks or small interventions	special types of greenery (schools, hospitals, senior houses...)	rainwater management projects	biodiversity support	urban development				
Bratislava	440,948	1,199	x	x	–	–	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Košice	238,138	1,004.59	x	x	–	x	x	–	–	–	x	x	x	x	x	–	–	x	x	–
Prešov	87,886	1,247.85	x	x	x	–	x	x	–	x	x	–	x	–	–	–	–	–	x	–
Žilina	80,386	1,004.45	x	x	x	x	–	–	–	x	–	–	x	–	–	–	x	–	x	–
Nitra	76,028	756.65	x	x	x	–	x	x	x	–	–	–	–	–	x	–	x	x	x	x
Trnava	64,735	904.88	x	x	x	–	x	–	–	–	x	x	x	x	x	x	x	–	x	–
Trenčín	55,416	675.8	x	x	–	–	x	–	x	–	x	x	x	x	–	–	–	–	x	–
Martin	53,763	793.67	x	x	–	–	–	–	–	–	–	–	–	–	–	–	x	–	x	–
Zvolen	42,092	426.33	x	x	x	–	x	–	x	–	x	x	x	x	x	–	–	–	x	x
Brezno	20,736	170.02	x	x	–	–	–	–	–	x	–	–	x	–	–	–	–	–	–	–

Łódz – there are many parks, green areas, as well as the largest forest complex there. There are over 30 city parks in Łódź with a total area of nearly 500 hectares, 13 of which are historical parks under conservation protection. In addition, the areas of a park nature include the Botanical Garden, the Municipal Zoological Garden, several sports and recreation centres, as well as numerous squares and lawns. One of the favourite walking places for the inhabitants of Lodz is the largest forest complex within the city limits, Łagiewniki Forest with an area of approx. 1.250 hectares. Such a great variety of green areas and the constant development of Łódź parks are appreciated by the inhabitants of Łódź, who are more and more willing to use these places for everyday recreation.

Kalisz has compact development build-up areas, which makes it difficult to plan large green areas. That's why parks and squares are densely interspersed with canals, alleys and streets. Recently, bus stops overgrown with vegetation have been designed in the city.

3.2 Evaluation of chosen cities in Slovakia

Bratislava – the capital of Slovakia consists of 17 city districts; each district has its own autonomy. The most active districts are Old City (revitalisation of squares and pocket parks, new technologies in tree planting – using the structural substrate in root open cells), Karlova Ves (nature-based solutions, establishment of rain gardens and stormwater collection, flower meadows, education of the public), Rača (flower meadows, support of the community gardens), Záhorská Bystrica (revitalisation of the district park), Petržalka (establishment of the orchards, new tree plantation, high quality of the open spaces of new housing estates). The main central organisation which elaborates the standards and documents for the whole municipality is the Metropolitan Institute of Bratislava, where architects, landscape architects, ecologists and sociologists are employed.

Košice is the second-largest city in Slovakia. There are plenty of projects, which have been realised within the urban structure of the city and also in the recreational landscape. Several sites have been reconstructed – Kulturpark cultural centre of Košice (brownfield revitalisation), city park revitalisation, Park Moyzesova. There is an active NGO Carpathian Development Institute in Košice. The city Climate Adaptation Strategy is under preparation. One of the 22 districts – KVP – is testing out an environmentally-friendly philosophy in designing spaces in between apartment buildings, especially in densely-populated areas with pre-fabricated panel houses. Many of the primary schools started to create rain gardens as a part of environmental education. The city gained the title of European Capital of Culture in 2013 after a five-year preparation. During the preparation period, small technical buildings within the city (called "výmenník") have been transformed into the modern centres of art and culture which are very popular among inhabitants up till now. In June 2020 the City of Košice was awarded an international grant Urban Innovative Action. Only 11 from 222 projects across Europe were selected.

At the City Hall, there is a Department of the Main Architect of the City with a Section for Urbanism and Section for Architecture. These offices have organised several official architectural competitions. The last one was focused on the revitalisation of the former water mill canal in the centre of the city.

Prešov – the main projects that have been realised here are the revitalisation of the open spaces of the housing estates and small city parks which have been supported by EU funds. Manual for the design of open spaces has been prepared which is a guideline for further development and equipment of open urban spaces.

In Prešov, there is a Department of Spatial Development, Architecture and Construction with Sections of Territorial Development and City Architecture within the City Hall.

Žilina has prepared several projects of Landscape design revitalisation within the last 3 years. Sites to be revitalised (i.e. urban studies or projects of the redesign of open spaces have already been elaborated) are the following: the housing estates Solinky-Centrum (2021), Hliny V–VI (2021), Vlčince I and IV (2021), housing estate near the Hospital (2020), Hliny I, II, VII (2020), Hliny II–IV, VIII (2019), Hájik – Hradisko (2014). In 2013 three community gardens were established. The project of revitalisation of the City Park Ľudovíta Štúra won the 1st price in the Park of the year 2020 competition.

At the City Hall, there is a Department of Environment with a Section for Urban Greenery Management. There is also a Department of the Main Architect of the City, in which a landscape architect is employed. Several official architectural competitions for public open spaces revitalisation have been organised in Žilina.

Nitra – has prepared several projects for the revitalisation of the city parks, open spaces and squares. The City Hall actively involves inhabitants in discussions (e.g. Hackathon – public discussion about new master plan preparation, establishment of community gardens, application of suggestions for tree planting and urban interventions). Only small projects have been realised – supporting the biodiversity in the city and planting of single trees within the urban structure of the city. A new

Table 2a Evaluation of open spaces in chosen cities

Poland																											
City	**City district**	**Evaluated site/realised project**	**Landscape architectural design**							**Chosen greenery**								**Solutions for adaptation to climate changes**									
			concept of the project	**functional zones of the site and communications**	**connection to the surroundings**	**chosen mobiliary and equipment**	**art, sculptures, innovative, creative solutions**	**solutions for supporting the community and social life**	**precision of the realisation, detail completion**	**trees**	**trees/shrubs with edible fruits**	**shrubs**	**flower beds**	**flower meadows**	**lawn – intensive management**	**lawn extensive management**	**greenery on constructions, roof top gardens**	**rain gardens**	**swales**	**different management of the grass areas**	**permeable materials (parking plots, paths, roads)**	**water (jets in the pavement, fountains, pools,…)**	**drinking water**	**shadowed places**	**using structural substrates for tree planting**	**brownfield revitalisation**	**places for biodiversity: plants, insects**
Warsaw	Ursynów district	Zielony Służew Nad Dolinką (green area for recreation along Służew River)	3	3	3	3	2	3	3	3	3	3	3	3	2	3	0	0	0	3	3	3	0	3	0	0	3
Wrocław	area in a part of the New city	square – 26 Marca, Armii Krajowe Str.	2	3	3	3	0	3	3	3		3	3	3	3	3	0	0	0	3	0	0	0	3	0	0	2
Kraków	Zabłocie district	verical garden in park in "Stacja Wisła" Park	3	3	3	1	0	2	1	0	0	0	3	3	0	0	3	0	0	0	3	0	0	0	0	0	2
Rzeszów	centre	revitalization of Biały Ogród as pocket park (Farna Place)	3	3	3	3	2	3	2	2	2	3	3	0	2	2	0	0	0	2	3	3	0	2	0	0	2
Olsztyn	Zator district	recreation square	2	3	2	2	0	3	2	3	3	2	2	0	2	0	0	0	0	2	2	3	0	2	2	0	2
Przemyśl	centre	park	2	2	2	2	2	2	2	2	3	2	2	2	2	2	0	0	0	2	2	3	0	3	2	0	3
Jelenia Góra	centre	pocket park	2	2	2	2	2	2	2	2		2	2	0	0	0	0	0	0	0	0	0	0	2	2	0	3
Tarnów	centre	pocket park	2	3	2	0	0	3	2	0	0	2	2	2	0	0	0	0	0	2	0	0	0	0	0	0	3
Łódz	Górniak district	ogrody geyera (square)	3	3	3	3	3	3	3	3	0	3	3	0	2	0	0	0	0	2	2	0	0	3	3	3	3
Kalisz	in the whole city	green bus stops	3	3	3	0	3	3	2	0	0	0	3	0	0	0	3	0	0	0	0	0	0	3	0	0	3

The evaluation criteria were: 3 – creative and innovative solution, 2 – appropriate, ordinary solution, 1 – inappropriate solution, 0 – without a solution for supporting biodiversity or adaptation to climate change

Table 2b Evaluation of open spaces in chosen cities

Slovakia																										
City	**City district**	**Evaluated site/realised project**	**Landscape architectural design**							**Chosen greenery**								**Solutions for adaptation to climate changes**								
			concept of the project	**functional zones of the site and communications**	**connection to the surroundings**	**chosen mobiliary and equipment**	**art, sculptures, innovative, creative solutions**	**solutions for supporting the community and social life**	**precision of the realisation, detail completion**	**trees**	**trees/shrubs with edible fruits**	**shrubs**	**flower beds**	**flower meadows**	**lawn – intensive management**	**lawn extensive management**	**greenery on constructions, roof top gardens**	**rain gardens**	**swales**	**different management of the grass areas**	**permeable materials (parking plots, paths, roads)**	**water (jets in the pavement, fountains, pools,…)**	**drinking water**	**shadowed places**	**using structural substrates for tree planting**	**brownfield revitalisation**	**places for biodiversity: plants, insects**
Bratislava	Nové Mesto	Park Jama	2	3	3	3	2	3	2	2	0	0	2	2	3	0	3	3	0	3	3	3	3	3	0	3	3
Košice	Staré Mesto	Park Moyzesova	3	3	3	3	3	2	3	0	0	0	0	0	3	0	0	0	0	0	3	3	3	3	0	0	2
Prešov	City	planting the trees in the city	3	3	3	0	0	0	2	3	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	2
Žilina	Bôrik	Park. Ľ. Štúra	3	3	3	3	3	3	2	3	0	3	3	3	3	2	0	3	0	2	3	3	3	3	0	0	3
Nitra	–	supporting biodiversity	3	0	3	0	0	0	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Trnava	Zátvor	housing estate Zátvor	3	3	3	3	3	3	3	3	3	3	3	0	3	0	0	3	3	3	3	3	3	3	0	0	3
Trenčín	Biskupice	children playground Karpatská	3	3	3	3	3	3	3	3	3	3	3	0	3	3	0	0	3	0	3	3	3	3	0	0	3
Martin	Malá Hora	Jessenius Faculty of Medicine	2	3	3	2	0	0	2	2	0	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0	2
Zvolen	CMZ	Technical University in Zvolen	3	3	3	3	2	3	1	2	0	0	2	2	2	0	0	3	0	2	3	3	0	3	0	0	3
Brezno	CMZ	Margitin City Park	2	2	1	3	1	2	1	2	3	1	1	0	0	0	1	0	0	2	3	3	3	3	0	0	1

The evaluation criteria were: 3 – creative and innovative solution, 2 – appropriate, ordinary solution, 1 – inappropriate solution, 0 – without a solution for supporting biodiversity or adaptation to climate change

greenway/cycle road/which will connect the city with the surrounding areas is under construction.

The City Hall includes the Department of Environment with Section for Urban Greenery, the Department of the Urban planning and Architecture and the Department of the Main Architect of the City.

Trnava – is one of the most active cities in Slovakia, thanks to its mayor, who is very ambitious and has long-term visions. Plenty of projects have been realised and a lot of architectural competitions for different types of green open spaces have been organised. Development of the city with regards to landscape architecture happens not only within the urban areas but also in the surroundings of the city where new recreational zones have been established. For example, edible forest with recreational, climatic functions and also for the protection of the agricultural fields. The public is actively involved in discussions with landscape architect, as a result, high-quality projects are being created. There are plenty of other activities in Trnava, for example, Urban Intervention, Free Trees for Your Garden, 10.000 Trees Within the City, construction of the greenways and connection of the city with the surroundings. Projects completed are reconstructions of city parks, revitalisation of open spaces in housing estates (Tehelná, Gejzu Dusíka, Na Hlinách), new urban development Arboria, revitalisation of the forest park.

There is the Department of Territorial Development with Section for Urban Greenery and Concepts and the Department of Construction and Environment with Section for Landscape and Natural Protection within the City Hall structure.

Trenčín – several projects that stem from architectural competitions (revitalisation of part of the central zone) have been realised here. Other successful projects are pocket parks in the centre of the city, revitalisation of open spaces in the housing estates, revitalisation of the children's playgrounds, revitalisation of the university park and city park.

There is the Department of Construction and Development and also the Department of the Main City Architect within the City Hall.

Martin – one official architectural competition for Slovak National Uprising Square has been announced, and plenty of urban studies for various sites (parks, housing estates, streets, cemetery) have been realised.

At the City Hal, there is a Department of Environment with a Section for Urban Greenery. There is also the Department of Urban planning and Architecture as well as the Department of the Main City Architect with a landscape architect working there, too.

Zvolen – The City Hall is actively cooperating with the local Technical University in Zvolen as well as with several NGOs. Several interesting projects have been realised here: support of biodiversity through establishing of flower meadows, Urban Bees, establishing of the rain gardens in the housing estates and school gardens, collection of rainwater in school grounds and City Hall buildings and also in the open landscape.

Department of Construction, Environment and Traffic and Department of Urban Development are included in the City Hall structure.

Brezno – There are several projects for open spaces revitalisation (e.g. revitalisation of streets ŠLN, 9. mája, ČSA, F. Kráľa and of Margitin Park which are supported by EU funds. Department of Environment and Construction with Section for Waste Management and Management of the Public Open Spaces is working within the City Hall.

4 Discussion and conclusion

Vegetation in the city provides shade, lower local temperature, better condition of the air, reduces damage caused by flooding, reduces noise, supports water retention, improves the aesthetics and creates identity of the place. It also creates a habitat for numerous animals and other plants. Other elements of urban greenery, i.e. lawns, squares, flower meadows, green roofs of buildings, green stops, street greenery, rain gardens, cemeteries, retention reservoirs and parks are equally important, and even irreplaceable (Kousis, Pigliautile & Pisello, 2021).

The whole newly designed types of green areas big and small in Polish and Slovak cities are very important for improving human well-being in the cities. This is a positive aspect, because as it is observed new green areas are helping to improve the environment and to minimize the negative impact of the urbanisation process and climate change.

Many landscaping trends are about coming back to nature with low-maintenance, water-smart and eco-friendly designs, and using outdoor spaces more also for typically-indoor activities. The trends in landscape design projects vary a little bit due to different levels of economic and social standards of the society (we can consider worldwide differences, differences between the states and also differences in the regions).

In the USA the highlighted topics are Going Native, Outdoor Living Areas, Eco-Conscious Elements, Multi-Season Green, Getting Creative with Food Plants, Setting up a Pollinator Garden, Growing up With Vertical Gardens,

Smart Technology, Keeping Pests Out, Composting For Healthy Soils, Intricate Touches, Food Out Front, Secluded Spaces, Low-Maintenance Landscapes, Unique Outdoor Lighting, Xeriscaping, On-Site Water Collection, More Potted Plants, Front Porch Living, Blue Gardens (JMF Landscaping, 2020).

Shchur, Lobikava & Lobikava (2020) from Belarus consider the following as crucial to implement in the projects: community gardens, educational green space for children, recreation and exercise space for older people, café and recreation area, sports facilities, safety & security, biodiversity, car-free zone.

Ring, Reinwald & Damyanovic (2020) agreed that the function of the green infrastructure is not only ecological but also social and economic. A new and innovative project is the Biotope City in Vienna – the city as nature with its innovative approach in an urban planning model. It represents the modern way of industrial area revitalisation which was proposed by the interdisciplinary planning team. There is also a new approach seen in the revitalisation of the former airport in Oslo (Fornebu), in Vienna (See Stadt Aspern) and in Prostejov (CZ) where the greenery was established before the construction of the building or at least at the same time. Stormwater management and supporting the green-blue infrastructure is an important topic in the Nordic countries and countries of Western Europe. In the Czech Republic, there is a competition Adapterra Awards which collects great examples of landscape architectural projects with emphases on rainwater collection and supporting the biodiversity.

The cities in Slovakia and Poland have their Master plans ready, many of them have strategic documents for urban development, but only some of them have adaptation strategies for climate changes and guidelines for open spaces design. Many of the cities have urban studies or landscape design projects for chosen areas prepared (housing estates, school premises, parks, hospitals, forest parks) but due to lack of financial resources, they have not been realised yet. The city halls are prepared for external or EU sources of financing.

The landscape design studies and proposals in Slovakia and Poland were elaborated by landscape architects or a landscape architect was part of the project team. However, a big number of projects are still elaborated by architects only. In our opinion, the revitalisation of open public spaces should be designed in cooperation of professionals from various fields such as architects, landscape architects, engineers and ecologists.

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