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# GREEN SPACES AS STRATEGY FOR URBAN REGENERATION AND DEVELOPMENT – EXAMPLES FROM BRATISLAVA

## OBSZARY ZIELONE JAKO STRATEGIA DLA REGENERACJI URBANISTYCZNEJ I ROZWOJU – PRZYKŁADY Z BRATYSŁAWY

### ABSTRACT

The small scale green areas, urban parks, urban forests or natural green areas are vital components of the urban structure of cities. This paper, using examples from Bratislava, analyzes the successful and lost opportunities to apply the concept of green space as a strategy for urban regeneration and development, and discusses the ways to incorporate this concept in the teaching and educational practices in the fields of urbanism and landscape architecture.

**Key words:** green space, urban regeneration, urban development strategies

### STRESZCZENIE

Obszary zielone w małej skali, parki miejskie, lasy miejskie lub naturalne obszary zielone są istotnym komponentem struktury przestrzennej miast. W artykule, na przykładzie Bratysławy, przeanalizowano wykorzystane i utracone możliwości zastosowania koncepcji zielonych obszarów, jako strategii dla regeneracji urbanistycznej i rozwoju oraz poddano dyskusji możliwości wykorzystania tych koncepcji w nauczaniu i edukacji praktycznej w dziedzinie urbanistyki i architektury krajobrazu.

**Słowa kluczowe:** obszary zielone, regeneracja urbanistyczna, strategia rozwoju urbanistycznego

## 1. INTRODUCTION

The multiple functions and benefits of green spaces for contemporary cities, associated with the provision of recreational space, concepts of sustainability, resilience, adaptation to climate change, etc., are widely recognized. Small scale green areas, urban parks, urban forests or natural green areas are vital components of the urban structure of cities.

Transformation of their forms, roles and functions within the urban structure of cities through history is reflected in the environmental conditions and the co-temporary requirements of society. Many successful examples from cities all over the world show the potential of green spaces to serve as drivers and accelerators of urban regeneration and urban development. The concept of green space as strategy for urban regeneration and development used by

Frederick Law Olmsted in the plan of Boston's Emerald necklace, from 1894, or the concept of High Line, a public park on a historic freight rail line elevated above the streets on Manhattan's West Side<sup>1</sup> from 2004, can be listed from many examples.

Urban green spaces have the ability to contribute positively to contemporary key agendas in urban areas including social inclusion, health, sustainability, and also urban renewal [1]. Especially brown-field land shows the potential of redevelopment into green space [2], [3], [4]. The redevelopment of brownfields and the creation of green space in cities are two initiatives that are gaining support, for they are perceived to be important elements for fostering urban revitalization and more sustainable development [2].

## 2. THE AIM OF RESEARCH AND METHODS

The main study goal of our research is to explore the use of the concept of green space as a strategy for urban regeneration and development in the case of Bratislava, capital of Slovakia. The main great green space concepts in urban and regulation plans of Bratislava, in historical overview, through current and planned development, have been examined, with an objective to identify examples of successful, but also lost opportunities of green space concepts implementation.

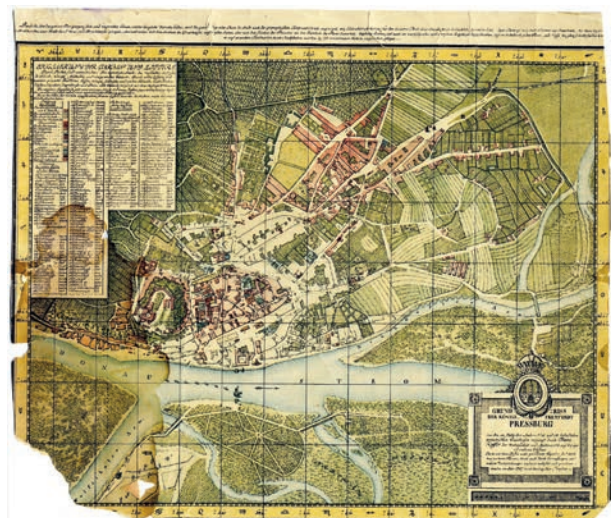
The possibilities to incorporate the concept of green space as a strategy for urban regeneration and development in the teaching practice and education of future urban planners and landscape architects, in the fields of urbanism and landscape architecture at the Faculty of Architecture, Slovak University of Technology in Bratislava, are discussed.

## 3. RESULTS – THE CONCEPT OF GREEN SPACE AS STRATEGY FOR URBAN REGENERATION AND DEVELOPMENT IN BRATISLAVA

Bratislava developed at the foothills of Small Carpathians on the banks of Danube river from a faubourg of a castle into a medieval town long before King Andrew III of Hungary granted it a charter in 1291 [5]. Today it's the capital of Slovakia with a population of around 426 000, covering 368 km<sup>2</sup>. The compact and densely built urban structure of the medieval historic city core has remained characteristic

for the city centre until today. The green spaces of the medieval historic city core inside the fortification system were represented only by few cloister gardens, palace gardens of important representatives of the church and aristocracy and few burgher's gardens. Gardens and vineyards surrounded the city outside the fortification system, as they are depicted for example on the oldest map of Bratislava – the Marquart plan from 1765. According to the regulation plan elaborated by Franz Anton Hillebrandt in 1774 the fortification system was demolished, only a few parts remained and the city expanded into the outskirts.

The first great public green space concept in the history of urban planning and development of Bratislava is dated from 1774–76. Sternallee, considered the first public park in Central Europe, is depicted for on the plan of Bratislava by Koffler, from 1787 (Ill. 1), or the Neyder plan of Bratislava from 1820. Sternallee, later Aupark, today Sad Janka Kráľa till present serves as a successful concept of the main and largest city park.



Ill. 1. The green spaces of Bratislava around 1787, depicted on the plan of Bratislava by Koffler (Source: Archive of K. Kristianova)

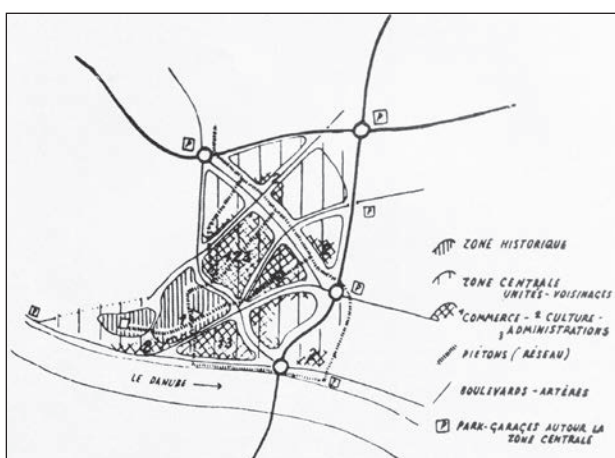
Il. 1. Zielone obszary Bratisławy około 1787 r., przedstawione na planie Bratisławy Kofflera (źródło: archiwum K. Kristianovej)

In the nineteenth century Bratislava was an important regional centre and the fourth largest centre in Hungary. The urban development in the late nineteenth and the early twentieth century resulted from the expansion of local industry [6]. The regulation plan of the city development by Antal Palóczy from 1917, proposing new transversal axis and industrial water canal in the city expansion eastwards, introduced also interesting concepts of public green spaces – “public parks and meadows”. However, the projects were not realized.

<sup>1</sup> By Friends of the High Line, the City of New York and design team of James Corner Field Operations, Diller Scofidio + Renfro, and Piet Oudolf, planting designer.

In 1929 the city council organized a competition for a new regulation plan of Bratislava. The first prize winning plan by J. Tvarožek, A. Dryák, K. Chlumecký and other entries did not bring exceptional strategies of green space development within urban structure. As mentioned by Kováč [7], the audacious concept of development was brought by the proposal of J. Štěpánek, in which the raster of housing quarters was interwoven with organic forms of old river arms of the Little Danube, bringing the natural environment into urban structure.

Architect and urban planner Emanuel Hruška, who founded the Institute of Urban Planning at Slovak University of Technology in 1948, pursued the concept of green spaces linked together and elaborated the idea of Bratislava's green cross-axis (Ill. 2).



Ill. 2. The idea of green cross-axis of Bratislava by Emanuel Hruška (Source: Vodrážka, P., 1991)

Il. 2. Idea zielonych skrzyżowań Bratysławy Emanuela Hruška (Źródło: Vodrážka, P., 1991)

It was incorporated in the master plan proposals by Kamil Gross, by Emanuel Hruška and by Ján Svetlík in 1949, and later also in the master plan by Milan Hladký in 1955. The main idea of the green cross-axis was to create a city boulevard 90 m wide, from main station to the cultural centre on Danube embankment, interconnecting parks, with the Medical Garden and Andrew's Cemetery [8]. However, this idea of greenway planning in Bratislava gradually vanished and the concept of interlinked green spaces was not implemented.

The urban study Broad master plan for recreational area of Bratislava, elaborated by the Department of Urbanism of Slovak University of Technology in 1961, applied the idea of radial and circular green corridors. It outlined the green along the Little Danube with a circular green belt, connecting the natural areas of the Small Carpathians with Danube. But this proposal of green corridors was not carried out as well.

During the periods of the second half of the twentieth century, the demand for green spaces was satisfied in urban concepts of mass housing. In the grand scale concepts of housing estates – Februárka, Krasňany, or Ružinov, later Petržalka, or Dolné hony and others, the vast areas between blocks of flats were planned for greenery. The best examples possessed a high quality of landscape architecture design, for example the courtyards of the housing estate Trávniky, which was equipped with a children's playground, or Park of Karol Šmidke, designed in the sixties and the seventies by Ferdinand Milučký, or the courtyards of the housing estate Medzijasrky, with a playground area, designed in the late seventies by Štefan Svetko and Juraj Hovovorka. Vast green areas of socialist housing estates in many cases suffered problems of maintenance. Today in many cases their green spaces become building sights, or they are converted to car parking places.

In the urban concept of the biggest housing estate in Bratislava – Petržalka, built in 1973 on the right bank of the Danube, architects Jozef Chovanec and Stanislav Talaš used a fragment of a dead Danube arm – Chorvátske rameno as a central attractive axis of the housing estate with civic amenities, planned as a green space corridor and also transport corridor. Because the transport corridor was not built, the space remained an empty reserve area waiting for planned tram way, which did not allow the development of its park and green space functions. The competition in 2014 tried to find solutions to solve the problem of the space.

The main green space areas of the city, as they were stabilized in urban master plans during the second half of the twentieth century, till current Master plan of Bratislava from 2007<sup>2</sup>, are represented by forest areas on the slopes of the Small Carpathians, green spaces along the Danube and small scale green spaces within the urban structure (Ill. 3).

The nineties were a period of ecological change of urban and spatial planning in Slovakia, although the theoretical principles of ecological networks creation have been widely elaborated earlier (Miklós, 1989), landscape ecology as a science had a long tradition in former Czechoslovakia, in Slovakia represented by Ružička or Miklós. Territorial systems of ecological stability for Bratislava were elaborated, a local system in 1990 and 1991 and a regional system in 1994. These documents have introduced

<sup>2</sup> Vranková, O., Drobníková, D., et al., 2007; Územný plan hlavného mesta Slovenskej Republiky Bratislavy (Master plan of Bratislava, the capital of Slovak republic, [http://www.bratislava.sk/vismo/dokumenty2.asp?id\\_org=700000&id=80478&p1=51737](http://www.bratislava.sk/vismo/dokumenty2.asp?id_org=700000&id=80478&p1=51737)).





Ill. 3. Green network (dark grey) in the spatial plan of Bratislava (Source: Vranková, O., Drobniaková, D. et al., 2007)

Il. 3. Zielona sieć (ciemny szary) w planie przestrzennym Bratisławy (Źródło: Vranková, O., Drobniaková, D. i in., 2007)

a system of bio-centers and bio-corridors, regarded as greenways with ecological functions. The master plan of Bratislava from 2007 laid out 24 bio-corridors, of supra-regional, regional and of provincial importance. However, it has not shifted the issue of bio-corridor planning into local – city level. In the text part of the document it states the difficulties with the legislative and spatial declaration of the theoretical concept of bio-corridors in urban areas. Bio-corridors were expressed as lines without clear statements of their regulation requirements, physical parameters, borders or width, so they missed the tool for decision making to preserve their full functions as greenways, they remained often as thought virtual lines in a built up area. For example in the case of the Little Danube, bio-corridor is formulated just as a line in the axis of the river and cannot cover the full meanings of the riparian corridor with accompanying vegetation functions. The spatial planning system was not able to incorporate and translate the ecological concept of bio-corridors into the language of urban planning regulations enabling spatial decision making. The prevailing tendency is to accept bio-corridors as virtual lines, without the will to translate them into spatial regulations [10].

In the current urban regeneration and development of Bratislava, in the partial zonal plans for new

development and redevelopment, only small scale concepts of public green spaces are found. Zonal plans for development of the Danube embankment in Petržalka between the bridges<sup>3</sup>, or Zonal plans for development of the embankment under Bratislava castle<sup>4</sup>, both propose strips of green spaces complementing built up structures. Although small urban parks or small scale green areas are important components of urban structure, too. For example, in a recent redevelopment of the Danube embankment, one of the successful examples of a green promenade and recreational green spaces – Eurovea<sup>5</sup> (Ill. 4).



Ill. 4. Green Danube embankment of Eurovea (Photograph: K. Kristiánová).

Il. 4. Green Danube nasyp Eurovea (Fot. K. Kristiánová)

The zonal plan Podhorský pás<sup>6</sup> tries to set regulations to preserve the green spaces of vineyard area on the slopes of the Small Carpathians in contact with the municipal forest area which is facing development pressures. Often pressure to develop remnants of green areas in urban structure stands against public will [11].

Especially redevelopment of brownfield land has a strong potential to establish a great modern public parks [12]. They can contribute in many ways to the quality of urban life, environment, improve access to recreation, enhance scenic beauty, or raise property value, but this strategy has not been used in Bratislava, yet.

<sup>3</sup> Územný plán zóny CMC – Časť Petržalka, Územie medzi Starým mostom a Prístavným mostom, Markrop, Ivan Marko, Marta Kropiláková, 2006.

<sup>4</sup> Územný plán zóny Podhradie, Aurex – Bogár Králik Urban, 2006.

<sup>5</sup> Authors of architectural concept: Marek Varga, Miroslav Vrábel, Branislav Kaliský, A1 ReSpect, Bose International Planning & Architecture Michel Desvigne, 2006–2010.

<sup>6</sup> Územný plán zóny Podhorský pás, AUP MEDIA, Peter Gál, 2003, 2009..

### 3. DISCUSSION –THE CONCEPT OF GREEN SPACE AS STRATEGY FOR URBAN REGENERATION AND DEVELOPMENT IN TEACHING AND EDUCATION PRACTICE

The results of the study suggest that the concept of green space as a strategy for urban regeneration and development in Bratislava is not fully used. Many urban planning proposals to create important systems of green spaces were not implemented. Teaching practice at Faculty of Architecture, Slovak University of Technology in Bratislava aims to apply

the concept of green space as a strategy for urban regeneration and development in education of future urban planners and landscape architects, in the study fields of urbanism and landscape architecture. Several studio works focus on the problems of green space design and make an effort to incorporate green spaces in urban development and regeneration projects. The themes are often elaborated in partnership with municipalities, or within international project and grant schemes, for example the project urbANNatur, in partnership with Forest Department of Vienna and the Municipal forests of Bratislava (Ill. 5).



Ill. 5. Landscape architectural proposal for former ammunition dump site, Bratislava, Krasňany, students P. Gašpar and M. Pastvová, consultant K. Kristiánová, Project urbANNatur, 2010/11 (Source: Archive of ÚKZA). In the year 2009/10 students worked on “Hanging gardens of Bratislava”, a proposal for the vineyard area above Bratislava, in collaboration with the City of Bratislava. The works of students represent a database of various solutions. The Municipality of Bratislava and the municipalities of the city parts, welcome designs for small scale green areas, urban parks, urban forests and natural green areas. Every academic year, students work on assignments connected with requirements from practice, not only in the area of Bratislava. They work on assignments of public and green space design, in collaboration with many other municipalities, for example, in the year 2012/13 Trenčín – City on a River, or in the year 2015/16 public and green spaces in Trnava

Il. 5. Propozycja architektoniczno-krajobrazowa dla ukształtowania dawnego miejsca zrzutu amunicji, Bratislava, Krasňany, studenci: P. Gašpar and M. Pastvová, konsultacja: K. Kristiánová, Project urbANNatur, 2010/11 (Źródło: Archiwum ÚKZA). W roku 2009/10 studenci pracowali nad “wiszącymi ogrodami Bratisławy” i propozycją winnic na obszarze powyżej Bratisławy, we współpracy z miastem. Prace studentów stanowią bazę różnych rozwiązań. Władze miasta Bratisława i mniejszych dzielnic miasta, przyjęły projekty mniejszych obszarów zielonych, parków miejskich, lasów miejskich i naturalnych terenów zieleni. Każdego roku akademickiego studenci pracują nad zadaniami związanymi z wymogami praktycznymi, nie tylko w rejonie Bratisławy. Pracują nad zadaniami projektowania przestrzeni publicznych i obszarów zielonych we współpracy z wieloma innymi gminami, np. w roku 2012/13 miasto Trenčyn nad rzeką, lub w roku 2015/16 przestrzenie publiczne i zielone w Trnawie

#### 4. SUMMARY

The potential of green spaces to serve as drivers and accelerators of urban regeneration and urban development belongs to multiple functions and the benefits of green spaces for contemporary cities. Investigation of the main great green space concepts in urban development planning of Bratislava, in historical urban and regulation plans, through current and planned development, proves examples of successful, but also lost opportunities in green space concepts implementation.

The results of the study of green space concepts utilization as a strategy for urban regeneration and development on examples from Bratislava acknowledge the importance of green space system planning in urban development and expose the need to seek ways to enhance this concept in the teaching and education practice in the study fields of urbanism and landscape architecture.

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