

Industry and Pannonian City

The Transformative Role of Industry for the Modern Development of Middle-size Cities in Northern Serbia

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Abstract

Industrialisation and the related rise of a modern city in Eastern Europe have had very different development trajectories than those in Western Europe due to the changes of both political and economic systems. This can be seen on the example of the development of industry in six middle-size northern Serbian cities in Pannonian Plain that passed through three noticeable periods: (1) early industrialisation in an emerging capitalism of Austro-Hungarian Monarchy in late 19th and early 20th century, (2) planned industrialisation in socialism in the second half of 20th century of Yugoslavia and (3) de/reindustrialisation tendencies in post-socialist transition since the 1990s. All three periods of industrial development have left immense consequences on the cities, their urban fabric and land use. Hence, the aim of this paper is to explain the pace of industrial development in six selected cities since the rise of capitalism in early modern periods in 18th century, as well as their spatial and social impact on urban fabric and urban planning and regulation thereof. This research thereby gives an insight into the locally rare examination of an industry-driven urban development, contributing in the understanding of this, generally underestimated planning legacy.

Keywords

Modern era, industrial city, socialist industrialisation, reindustrialisation, urban matrix

How to cite

Branislav, Antonić; Djukić, Aleksandra; "Industry and Pannonian City: The Transformative Role of Industry for the Modern Development of Middle-size Cities in Northern Serbia". In Carola Hein (ed.), *International Planning History Society Proceedings*, 19th IPHS Conference, City-Space-Transformation, TU Delft, 5 - 6 July, 2022, TU Delft Open, 2022.

DOI: 10.7480/iphs.2022.1.6441

INTRODUCTION

A common view on Eastern/post-socialist Europe is that it is in contrast to Western Europe due to the divisive history of the continent in the last hundred years. Eastern Europe passed through socialist/communist period, with ongoing consequences in long-lasting post-socialist transition. This has not been the case with Western Europe with undisturbed market-driven economy for centuries. The same view can be applied to a dichotomy between Western and Eastern European cities as the main spatial 'protagonists' in the economic development of the continent¹.

Nevertheless, this can be a scientific glimpse. The Eastern Europe, including its cities, had a semi-peripheral position at the continent for centuries, i.e., much longer than socialist period. The most of European power-states were developed at the European West during Middle Ages and early modernity^{2,3}. Eastern Europe further had the many historical downturns due to their openness to Central Asia, from which there were numerous invasions to Eastern European states during these centuries. Such historic conditionality makes their cities weaker. They thereby played a lesser role in the rise of early capitalist economy and a modern citizenry^{4,5}. As a result, Eastern Europe inherited an underdeveloped urban system before 20th century⁶.

The (post-)socialist features of Eastern European cities are, however, crucial for their modern urban development^{7,8}. One of them main denominators of a socialist city is certainly an industry. According socialist ideology, a modern city is an industrialised one⁹. Although the socialist period was marked by a planned rapid industrial development, early industrialisation in Eastern Europe began decades earlier, in the 1860s-1870s. This was happened in the westernmost parts of spacious Austro-Hungarian and Russian empires, while it traversed to their eastern parts till the end of century¹⁰. Generally, this process was fuelled by the fast development of rail transport as by far the fastest and most efficient mean of transportation before the World War I. This late industrialisation for European context gathered pace soon; both empires had a high annual growth rates till the World War I, but they were still economically behind Western European powers^{11,12}. Side by side with this fast industrialisation, social inequalities accelerated. This was especially visible in the centres of industrialisation – demographically booming major cities with uncontrolled growth¹³. Therefore, cities in Eastern Europe became the right 'candidates' for new political experiments, such as socialist revolutions.

Although 1917 was a decisive year for the establishment of the USSR as the first socialist state, the formation of the model of a socialist city lasted for at least next three decades. The first 15 years were critical in this process due to the overall dynamics and the spirit of experimentalism¹⁴. In this constellation, an imperative on mass-industrialisation, accompanied with workers as a focus group, was in urban policy¹⁵. Actually, "urbanization was considered a side issue of industrialisation"¹⁶. The spatial reflection of this ideological approach is vast industrial zones in (post-)socialist cities, usually 2-3 time larger than in western counterparts¹⁷. The location of new, socialist industry was well-planned to fulfil the necessities of a socialist city and its inhabitants. In one hand, industry in an ideal socialist city had to be close to workers' dwellings, so they did not spend more than 10-20 minutes walking to their working place¹⁸.

In the other hand, some more pragmatic modernist principles of urban sanitation were also implemented, such as locations along rivers as waste collectors¹⁹.

This socialist city based on mass-industrialisation was proved to be very fragile to the changes of political and economical systems in the early 1990s. One of the most problematic urban consequences of the collapse of socialist states was the sharp decline of industrial production – deindustrialisation²⁰. This further caused the significant rise of unemployment in many post-socialist cities and population crisis with demographic decline thereof²¹. After the first wave of mass-deindustrialisation, new industry, driven by western companies, emerged in post-socialist cities. In some cases, this reindustrialisation process happened by the restructuring and privatisation of the former socialist industrial plants, such as the well-known transformation of the former “Škoda Auto” plants in Mlada Boleslav, Czech Republic, into a modern car factory by new owner, German Volkswagen Group. Nevertheless, many old plants have become a brownfield land, with a great negative impact on the entire urban environment²². In contrast to them, many new factories have been built as greenfield investments along the main exit corridors from post-socialist cities. For example, many post-socialist countries were among the best rated ones by Greenfield FDI Performance Index in 2019²³. Although this gap of post-socialist industrial zones between brownfield and greenfield is easily noticeable, it also presents the rational approach of global capitalism at local level, to skip spatial and functional obstacles, burdened in old industrial plants and zones.

The afore explained features of Eastern European urban system underline that the full picture of the modern urbanisation in this part of Europe cannot be scrutinised without differentiating three periods in periods in urban development: pre-socialist/early-capitalist, socialist, and post-socialist/transitive from socialism to capitalism. Explaining that industry is in the very heart of the construct of a modern Eastern European city, it is in the focus of this research. Concretely, the aim of the research is to explain the pace of industrial development on the example of six selected middle-size Pannonian cities in present-day northern Serbia since the early industrialisation in late 19th century, as well as its spatial and social impact on urban matrix and urban planning and regulation thereof. This is done in the form of the overview of three aforementioned development phases, where the links between historic circumstances, industrial growth, and urban evolution and planning are bridged. Hence, this research gives an insight into the locally rare examined, industry-driven urban development, contributing in the understanding of this, generally underestimated planning legacy.

METHODOLOGY

The presented research is developed as a multi-case study. To properly set up it, concise information about the regional profile of the topic is given in the introduction section. This refers to the role of industrial development for the formation a modern city in post-socialist Europe, with three periods and their main components:

1. Early industrialisation in emerging capitalist city: first industry along railways and around railway stations;

2. Planned industrialisation in socialist city: spatially interconnected development of housing for workers (multi-family housing) and preferred location of industry along the rivers and the other waterways for sanitation issues; and
3. De/reindustrialisation in post-socialist city in transition: decline of old industrial zones and the rise of new ones, along the main exit roads from cities, especially if they lead to nearby highways.

These components are treated as criteria to analyse the selected case studies, which are six cities, located in Pannonian plain in the Northern Province of Vojvodina of the Republic of Serbia. They are: Kikinda, Pančevo, Sombor, Sremska Mitrovica, Subotica, and Zrenjanin (Fig. 1).

All these cities are intentionally selected, because they share several important characteristics; this approach simplifies their comparison and the derivation of qualitative conclusions:

- Medium-size cities for Serbia: population 30,000-100,000;
- The same position in second-level administrative division in Serbia: seats of Serbian districts (NUTS3);
- In line with the previous characteristics, all selected cities have similar urban functions and public facilities, such district hospital and 4-5 secondary schools;
- Location in (Pannonian) Plain, which implies fewer natural limitations for spatial development;
- Similar historic development in the last three centuries, i.e., during Habsburg/Austro-Hungarian Empire (1699-1918), Yugoslavia (1918-2006) and the Republic of Serbia (2006-);
- The same conditions relating relevant Serbian legislation on urban planning. For example, general urban plans are required for all six cities require, which is not the case with smaller cities and towns.

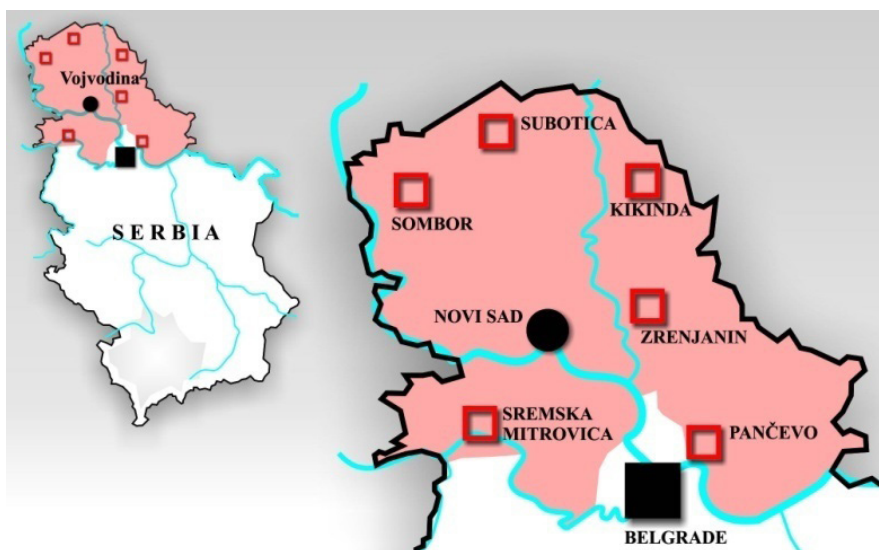


Fig. 1. The location of six cities-case studies in Serbia and Vojvodina Province

PERIOD 1: EARLY INDUSTRIALISATION IN EMERGING CAPITALIST CITY

The roots for early industrialisation in Southern Pannonia were set up in the early 18th century by Habsburg Empire, with the deep spatial transformation of this previously Ottoman area (16th-17th centuries). The new rulers found completely devastated area with a small population, imposed a military government on it and their military engineers rationally reshaped the entire territory; orthogonal matrix was implemented radically on both settlements and land plots²⁴. This strict regulation enabled the fast development of urban settlements in Southern Pannonia²⁵. Habsburg government also supported mercantilist capitalism measures, so the first manufactures based on rich agriculture, such as bigger mills and breweries, were established in major settlements during 18th century²⁶.

A demarcation year for early industrialisation in the selected cities was 1867, when centrist Hapsburg Monarchy was transformed into dual Austro-Hungarian Monarchy. This event boosted the overall development of less developed Hungarian half, where Southern Pannonia was located. The precondition for early industrialisation was the Revolution 1848/49, when feudalism in the Monarchy was dissolved and newly free peasants as cheap labour flooded its cities²⁷. Economically speaking, the development of railway network in the monarchy was critical for the industrialisation²⁸. The demarcation year in this sense was 1859, when the first train arrived to Southern Pannonian cities. In next three decades, all major cities were connected by railways²⁹ and Southern Pannonia eventually got the densest rail network in the whole Danube Region before the World War I³⁰.

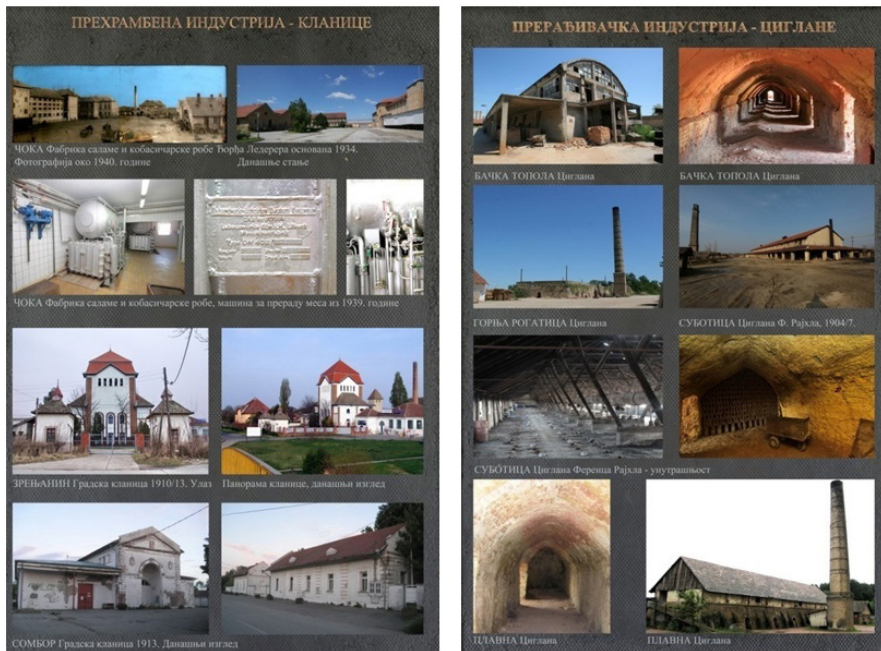


Fig. 2. Old industry (cc. 1870-1918) in the cities of Northern Serbia

The industrialisation included both the transformation of old manufactures and the establishment of the first full factories. Additionally, the diversification of industrial production took place. Meat packing factories and sugar refineries, as well as the first non-food industry, such as a brick, tile and furniture production, appeared (Fig. 2).

All these transformations reflected in urban fabric (Fig. 5, left). New industry was primarily built along rail and around the railway stations at (then) urban periphery instead of old manufactures along rivers. It formed the oldest industrial zones in these cities³¹. A good example is still active big mill factories in Kikinda, Sremska Mitrovica, and Zrenjanin, which were located next to railway stations. Exemptions from this rule were conditioned by specific circumstances, usually related to the limited availability or accessibility of raw materials, such as clay for brick and tile production or wood for furniture industry.

The development and location of a new industry in Southern Pannonian cities further influenced the other urban functions and the overall increase of urban densities and urbanity. For instance, new, denser residential neighbourhoods followed the rise of industry and rail, sprawling around them. This ultimately caused the creation of the first full urban regulation plans, so this period before the World War I can be marked as the beginning of a modern urban planning in these cities³².

PERIOD 2: PLANNED INDUSTRIALISATION IN SOCIALIST CITY

Short interwar period was not important to be separately examined. It was the period of an economic stagnation for the selected cities in Southern Pannonia. They could not utilise their advantages in the newly established the Kingdom of Serbs, Croats and Slovenes or the Kingdom of Yugoslavia from 1929. This region was above-average developed in the new kingdom, with more 1/5 of all enterprises³³. Moreover, it was the most urbanised part of the country; 1/3 of population was urban in the first census in 1921³⁴. This was in a sharp contrast to the fast growth of the centrally located City of Novi Sad, an emerging political centre³⁵ in Southern Pannonia³⁶.

The end of the World War II, nevertheless, brought a new impulse in six selected cities. The political and economic systems of Yugoslavia were totally changed, embracing socialism and planned economy (Haug, 2012)³⁷. The second Yugoslavia (1945-1992) was also a federalist and decentralised state; the aforementioned Autonomous Province of Vojvodina (Fig. 1) with a strong local identity³⁸ was created from the area of Southern Pannonia. This was the part of the broad scope of the measures, done to form a unique socialist way in the Yugoslavia, known as a workers' self-management³⁹.

Yugoslavian urban planning and cities were positioned to be a role-model for the implementation of this unique socialist idea⁴⁰. In the case of cities in Vojvodina, their independence and the self-development of local standards and norms for urban planning and architecture was visible in space, especially in late socialism. For example, all selected cities mainly preserved their historic cores and buildings⁴¹ or omit the construction of mass-housing estates by supporting small neighbourhoods and single-family residential construction⁴².



Fig. 3. a food-processing plant (big mill) in Pančevo from socialist period (Year 2018)

Despite its specificity, workers' self-management in Yugoslavia maintained the main pillars of a socialist system, such as its devotion to (urban) proletariat and related mass-industrialisation. Therefore, it preserved the general interest to support urbanisation by mass-industrialisation. K. Petovar (2003) named this approach as an "urbo-centric policy"⁴³. First, all industrial enterprises in Vojvodina were nationalised after the WWII⁴⁴. Then, many new industrial plants were built in the selected cities. They usually belonged to light industry, particularly food processing industry due to a rich agricultural base in plain Vojvodina (Fig. 3).

The planned industry of the socialist system was more thoroughly realised through a novel urban planning, based on the tenets of modernist urbanism (Fig. 5, middle). A proper dealing with industrial waste was important, so then effective sanitarian-hygienic measures were implemented⁴⁵. New industrial zones were built along the waterways downstream to cities. In the other side, the cities without waterways witnessed the enlargement of already existing industrial zones. The other ecological principles were not considered, which has become a problem for citizens⁴⁶. Finally, old nationalised factories were mainly preserved in their initial locations, with additions and modernisation.

PERIOD 3: DE/REINDUSTRIALISATION IN POST-SOCIALIST CITY IN TRANSITION

The first decade of post-socialist transition in Third Yugoslavia (1992-2006) was more severe than in the other parts of Eastern Europe. The collapse of socialist system was followed with a deep, decade-long political and economic crisis with wars. This grave situation was reflected through economy; it was estimated that the industrial production of Serbia in 1998 was 1/3

of that from 1990⁴⁷. At the same time, factories from socialist period were preserved active despite obsolete technology⁴⁸.

The economic 'recovery' after the 2000 has been seen more as a loosely controlled growth than development⁴⁹. It has been mainly explained through that biting reforms endorsed neo-liberal capitalism in Serbian industry⁵⁰. This was followed with the closing of many previous public industrial enterprises. For example, 30 such enterprises were locked during the 2010s just in Zrenjanin⁵¹. The other questionable events were the numerous failed privatisations of such enterprises or even their "quasi-privatisations" to buy cheap urban land in central locations, to use this land for other purposes, such as a new multi-family housing⁵² (Fig. 5). Therefore, many such factories and plants have lost their function and became a problematic brownfield land. In the meantime, some of them have been valorised and protected as an industrial heritage (Fig 2).

Last years has been characterised by the wave of reindustrialisation, but at new, greenfield locations at urban fringe, usually along the main exit roads. The most attractive locations are those that lead to highways (Fig. 4) or are exit roads to major cities (Belgrade and Novi Sad). The reindustrialisation through greenfield investments has been overlapped with the new phenomenon of suburban shopping centres, which mutually refragmented the urban matrix again, towards completely unfamiliar polycentrism. This trend opens new challenges for the urban planning (Fig. 6, right) of the selected cities that will be in the focus in the future.



Fig. 4. Old brewery in Sremska Mitrovica was turn down for new multi-family housing in 2008

FINDINGS AND DISCUSSION

The research presents the industry-driven urban development of six Serbian cities in Southern Pannonia. In line with three distinctive periods in the modern history of Eastern Europe – pre-socialism, socialism and post-socialism – the research was organised in three steps, trying to identify mutual influences between industrial and urban development in the “microcosm” of these six cities. Findings can be scrutinised through the Figure 6.

The image shows that rail was clearly the main driver of early industrialisation – the first industry concentrated mainly around railway stations. As it was pointed out, the exemptions were caused by unusual circumstances. For instance, brick and tile industry in Kikinda⁵³ was positioned in the south of the city, where local clay reserves were abundant, but on the opposite side of the city regarding railway station. Another illustrative exemption is “Varda” wood processing industry in Sremska Mitrovica, which railway station was on north. Nevertheless, this factory was built on the Sava River at the city westernmost edge, because of its dependence on the waterway transport of wood as a key raw material from nearby Bosnia upstream (west).

Industrial development in socialist era can be divided between the case studies with and without waterways. Four analysed cities got spacious industrial zones with several big enterprises next to the rivers (Pančevo-south, Sremska Mitrovica-southeast, and Zrenjanin-south) and a canal (Sombor-south). In the other side, Kikinda and Subotica as two cities without waterways witnessed the enlargement of already existing industrial zones.

Finally, post-socialist period ‘unifies’ all six cities by industrial development; all of them has got new industrial zones along the main roads as a key development driver, but with different pace between them. While Zrenjanin and Subotica have got big industrial zones on their (western) edges, in the other cities, these zones are smaller and more dispersed between several exit-roads from a city. Similarly, all cities have got industrial brownfields, which are evenly distributed between old pre-socialist sites in inner urban areas and socialist sites at urban outskirts.



Fig. 5. New factories built as greenfield investments along highways in Vojvodina (Year 2020)

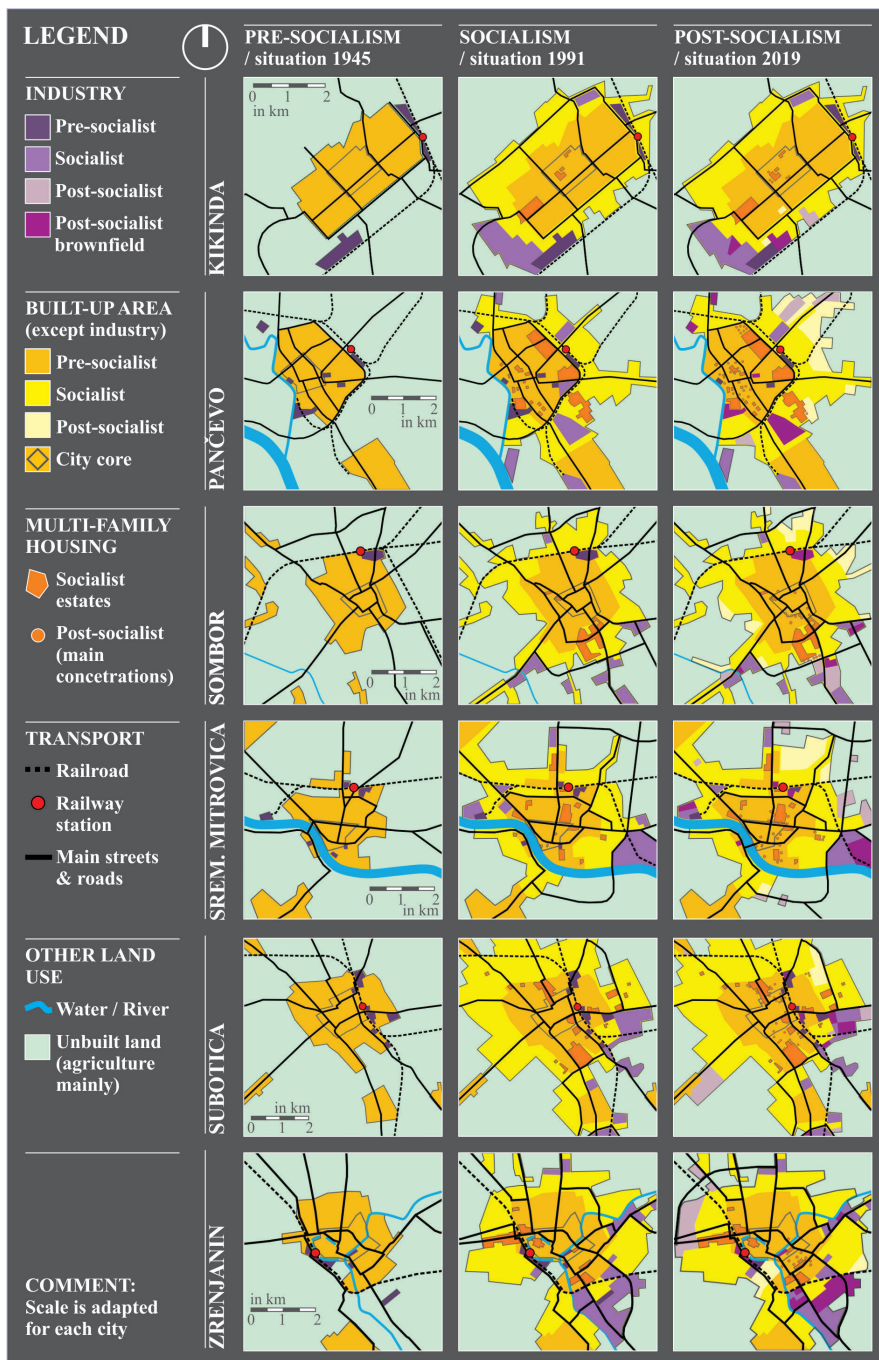


Fig. 6. Industrial development vs. urban development in six case studies

CONCLUSION

If the previous findings are considered at regional/post-socialist context, it is obvious that industrial development in Serbian middle-size cities in Southern Pannonia reflect a three-period industrialisation in post-socialist Europe. Nevertheless, there are some differences. The proximity between the multi-family housing and industry built during socialism as important in socialist urban agenda is not noticeable in the most of these cities. At contrast, the planned industrial development in the form of large industrial estates is visible in all cases. Interestingly, the vitality of these zones during post-socialist transition depends if their roots were already settled in pre-socialism. For example, it seems that industrial zones in Subotica and Kikinda, founded in 19th century and further developed through 20th century, are more vital than socialist industrial zones in, for example, Sremska Mitrovica or Pančevo, specially formed within planned economy. Moreover, the cities with more spacious newer greenfield industrial zones are usually the same ones with more industrial brownfield sites.

Final recommendations are based on these conclusions:

1. The main recommendation is that urban development need to be better coordinated with the overall urban development of all cities, to prevent the unnecessary enlargement of built-up areas;
2. Historic data shows that transport-driven development of industry is the most rational one, while the other approaches are with the higher risk to be become a brownfield. Thus, this approach should be supported in urban plans, with the adequate respect of ecological measures. The special focus should be the transformation of the brownfields along the main roads;
3. All presented cities have the relatively similar ratio between greenfield and brownfield sites, which implies that this is not just a local situation. Therefore, comprehensive actions at regional or national level should be enacted, in the form of an appropriate strategy.

ACKNOWLEDGEMENTS

This paper is done as a contribution for two international projects: (1) Project “Creative Danube: Innovative teaching for inclusive development in small and medium-sized Danubian cities” of Erasmus+ KA2 Programme, financed by the European Union; and (2) Project “DANURB+ DANube Urban Brand + Building Regional and Local Resilience through the Valorization of Danube’s Cultural Heritage (DTP3-433-2.2), co-funded by the EU through INTERREG Danube Transnational Programme.

IMAGE SOURCES

- Fig. 1 created by first author of the paper
Fig. 2 Source: Vesna Karavida and Jasmina Vujović, 2016; accessed March 15, 2020: <http://www.zrenjaninheritage.com/archives/13080>.
Fig. 3 from the collection of the first author of the paper
Fig. 4 from the collection of the first author of the paper
Fig. 5 from the collection of the first author of the paper
Fig. 6 created by first author of the paper

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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45. Branko Maksimović, *The Development of Urbanism – from Ancient Times to Today* (Belgrade: Naučna knjiga, 1948), 220.

46. For example, many socialist industrial zones in the selected cities were built east or south-east to cities. This is a problem during wintertime, when dominant wind is from that direction, drifting polluted air to residential areas.

47. Slavka Zeković, "Possibilities of Sustainable Industrial Development in Serbia." *Facta Universitatis Series: Economics and Organization*, 1, no. 8 (December 2000). Accessed March, 2020, <http://facta.junis.ni.ac.rs/eao/eao2000/eao2000-05.pdf>, 35.

48. This is purposely done to omit mass-unemployment and related social disturbance. This approach has been even preserved till today in the case of key industrial enterprises.

49. Slavka Zekovic, and Vujosevic, Miodrag. "Development of South-Eastern Europe: The Role of Industrial Policy." *American Journal of Economics, Finance and Management* 1, no. 5 (2015). 445-446. <http://files.aiscience.org/journal/article/html/70200059.html#paper-content-3-1>.

50. Miodrag Vujošević, Zeković, Slavka, and Tamara Maričić, "Post-Socialist Transition in Serbia and Its Unsustainable Path." *European Planning Studies* 20, no. 10 (September 2012). <https://doi.org/10.1080/09654313.2012.713330>, 1707.

51. Radio Television Vojvodina, "How Zrenjanin industry decayed [Kako je propala zrenjaninska industrija]," May 13, 2014. http://www.rtv.rs/sr_lat/vojvodina/banat/kako-je-propala-zrenjaninska-industrija_485699.html.

52. Branislav Antičić, "The Urban Imprint of Post-socialist Projects in the Multi-family Housing of Cities in Vojvodina: between Regional Fundamentals and Local Strategies," In *Facing Post-Socialist Urban Heritage*, ed. Melinda Benko. Budapest: BME, 16.

53. It is still active "Toza Marković" Enterprise.

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