



URBAN PLANNING OF THE WIDER AREA OF THE SAVA RIVER IN BELGRADE - SUSTAINABLE DEVELOPMENT OR UNCONTROLLED GROWTH?

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Abstract

The general planning goals, such as sustainable development, social well-being, adaptation to climate change and the rational use of resources and goods, are only achieved with clear criteria and indicators for evaluating planning solutions, as well as for monitoring and evaluation of their implementation. Although the Serbian laws do not prescribe an exact procedure for monitoring and evaluation in urban planning, they require the presentation of the basic urban indicators in the preparation of plans, such as land-use balances, construction capacities, estimated number of inhabitants and users, volume of buildings, green areas, etc. The paper researches the adopted detailed planning solutions and those that are being developed in the wider area of the Sava River, relating to complete urban transformations. The research includes 14 plans, with a total area of about 540 ha. The basic urban indicators that are defined in the plans are analyzed and their summary is given. The goal of the research is to observe the trends related to the intensity of construction, the share of public uses and public areas, the future physical structure, the relationship to public goods, housing standards, etc., as well as to open issues related to the sustainable urban development of Belgrade.

Key words: *Urban planning, urban indicators, monitoring, evaluation, Belgrade.*

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Introduction

Monitoring and evaluation of plans are key for tracking the effects on the environment, society, economy, and ecology, ensuring the quality of solutions, informed decision-making, transparency, and accountability. It is the task of the administration and planners to meaningfully create plans and monitor their implementation to improve future planning, correct mistakes, and address new problems.

Conducted by public institutions, monitoring and evaluation of urban planning are routinely carried out through the acquisition and compliance with their conditions. The quality and public availability of this data present a particular problem, while the key shortcoming lies in areas that no institution fully covers, such as housing, green infrastructure, architectural design, or urban sprawl. Additionally, there is no data on the overall effects that planning has on goals such as sustainable development or climate change adaptation etc.

Establishing a system for monitoring and evaluating urban planning is a complex process. The first step is for the legislator to clearly define the need for this system and to make the quality of plans and the effects of planning the most important task of the administration, and the primary reason for planning in the first place. To begin with, it is important to analyze key indicators such as building capacity, object volumetry, surface area balance, green areas in direct contact with the ground, and population numbers, especially in the planning of new settlements and large urban areas. Namely, the mentioned indicators, defined by urban plans, directly affect the future physical structure of the city, the intensity of activities, user densities, the needs for transportation, utilities, and social infrastructure, and, consequently, the planning goals in the context of sustainable development, climate change, social justice, cultural identity, and so on.

If we don't know what kind of cities we want and what consequences our plans will have, planning becomes a bureaucratic process without purpose and without control over spatial development. In such a case, planning loses its true meaning and becomes susceptible to corruption and easy prey for predators of neoliberal provenance. In other words, planners must understand the effects of plan implementation, which must be a key criterion in making decisions about specific plans and activities.

In this paper, the stated indicators are considered in the example of planning the broader area of the left and right banks of the Sava River. In the last ten years, a significant number of detailed regulation plans have been adopted or are in the process of being drafted for this area. These plans enable the issuance of location conditions, building permits, and ultimately, construction.

From the adopted plans, the analysis included the plan for the "Belgrade Waterfront" project on the right bank of the Sava [1] and its amendments from 2022. [2], the plans for Block 26 [3], the bus and train stations in Block 42 [4], as well as the first phase of the transformation of the IMT and FMO factories [5], and the zone around Tošin Bunar Street and Heroja sa Košara Street in New Belgrade [6], [7], [8], [9]. Added to this is



the plan for the second phase of the IMT factory transformation, which has passed the public review procedures and is in the final stage of development [10]. Of the plans under development, the analysis included plans for the transformation of the broader Shipyard area [11], Blocks 18 [12] and 68 [13], the plan for the transformation of the tram depot in New Belgrade [14], and the expansion of the plan for the Belgrade Waterfront area to parts of Čukarica and New Belgrade municipalities [15].

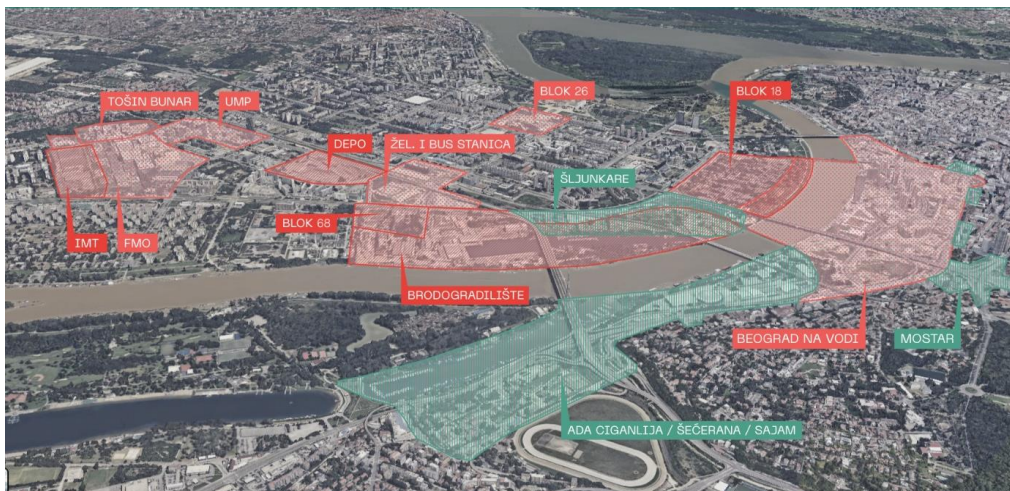


Figure 1: Broader area of the Sava River – adopted plans (light red), plans in the drafting process (red) and expansion of the Belgrade Waterfront project (green)

Building capacities and object volumetry

As the first step in the analysis, the estimated building capacities (gross floor area - GFA) from the adopted plans were summarized. Based on this data, the average building index (floor area ratio - FAR), i.e., the intensity of construction for each plan, was calculated. The analysis showed that the construction intensity in the Belgrade Waterfront area [1], which initially was approximately 1.6 in the entire territory (blocks + traffic network), increased by more than 10% through the plan amendments in 2022. [2]. Additionally, in the New Belgrade zone, on the site of the former IMT and FMO factory complexes [5-10], the construction intensity is over 25% higher compared to Belgrade Waterfront amendments. This trend, initiated by the original plan for Belgrade Waterfront in 2015, continues towards intensive exploitation of building land, primarily for residential construction and the real estate market.

The share of public facility capacities (schools, kindergartens, health centers, culture) in Belgrade Waterfront [1] dropped from an already low 3.5% to 3.2% in 2022. amendments [2]. In the zone of the former New Belgrade factories [5-10], this share is even lower, at just 2.2%, with no planned sports facilities anywhere. A particular problem is the plan for the bus and railway stations in Block 42 and part of Block 43 (former "Open mall") [4], where the buildings serving these stations account for only



15% of the total building capacity, while residential and commercial uses absolutely dominate.

In the second step of the analysis, the estimated building capacities for plans that are currently under development were assessed [11-15]. It is assumed that the construction intensity and the share of public facilities will be like those in Belgrade Waterfront [1], although the trend indicates the possibility of even less favorable results. Overall estimates show that nearly 10 million square meters (9,780,000 m²) of construction is currently being planned or built in the wider area of the left and right banks of the Sava River. The share of planned public facilities (education, culture, transport, and sports) amounts to an average of 3.2%, or 320,000 m².

To assess the possible physical structure around the left and right banks of the Sava, the built parts of Belgrade Waterfront [1, 2] and the official plans for Block 26 [3], bus and train station [4] and the former New Belgrade factories were analyzed [5-10]. The analysis shows that the dominant typology is the "tower" with heights ranging from 50 to over 150 meters in exceptional cases.

High towers, organized in clusters, are the most prominent feature of Belgrade Waterfront and are planned in Block 26, the bus and train station complexes, IMT, as well as along Tošin Bunar Street and Airport City. High towers represent the most suitable spatial form for "extracting" maximum profit from a single building plot. Although it may not seem so at first glance, lower towers in the form of lamellas represent the "most lucrative" type of construction as they allow for the formation of compact closed and semi-closed residential blocks, maximizing space utilization.



Figure 2: Broader area of the Sava River – potential construction scheme of 10 million estimated construction capacities (dominant typology is "tower" with heights ranging from 50 to over 150 meters)

The wider area of the former IMT and FMO factories dominates with this typology, and it is expected that the remaining space in the analyzed plans will be filled with similar lamellas for residential and commercial development. Special attention should



be paid to the fact that the expansion of Belgrade Waterfront [15] includes valuable assets such as Ada Ciganlija, the Belgrade Fair complex, and the Old Sugar Factory, which are potential "prey" for the financialization of building land.

In such a policy of urban growth, public facilities make up a negligible percentage of the planned and realized structures, which represents a paradox considering the millions of square meters of planned construction, primarily intended for housing.

Land-use balance and greenery in direct contact with the ground

As the first step in the analysis, the land-use balances in the adopted plans were summarized, including the total public and other land, as well as the share of areas for public purposes (schools, kindergartens, culture, green and communal spaces). The results show that the balance of public and other land in Belgrade Waterfront [1] was around 55:45% (1.2:1), which was reduced to 50:50% (1:1) by the plan amendments in 2022. [1]. However, in the New Belgrade zone, on the site of the former IMT and FMO factories [5-10], the balance of public and other land is only 35:65% (1:1.85), which represents a significant reduction in public land in the planned zones for the transformation of central New Belgrade.

In Belgrade Waterfront [1], out of 55% of the areas planned for public purposes, traffic areas make up as much as 39%, while public purposes within the blocks (schools, kindergartens, culture, green, and communal spaces) occupy only 16%. This percentage was reduced to 11.6% through the 2022 plan amendments [2], representing a loss of 5.1 ha of land aimed for social activities. In the New Belgrade zone around the IMT and FMO complexes [5-10], of the 35% of areas planned for public purposes, traffic accounts for just over 20%, which is almost half of what it is in Belgrade Waterfront [1], while the share of public purposes within the blocks is 14.6%. It is important to note that public green areas (parks, squares, corridors) in Belgrade Waterfront [1] account for only 6.1% in the original plan, reduced to 5.4% through the 2022 amendments [2]. In the IMT and FMO factory complex [5-10], this percentage is negligible, only 1%. Additionally, no area in all the analyzed plans is allocated for sports facilities and complexes.

In other words, the trend started by the original Belgrade Waterfront plan from 2015 continues, with a reduction in areas planned for public purposes. In Belgrade Waterfront, this reduction pertains to public facilities within the blocks, which are being replaced by residential and commercial uses, indicating a decline in social and ecological standards in planning. In the IMT and FMO zone, the reduction of public areas mainly refers to the share of traffic areas, leading to a drastic reduction in accessibility standards, especially with the increase in construction intensity.

Public green areas almost completely disappear from the planned purposes in areas designated for transformation and new residential zones. In the second step of the analysis, the share of public green spaces across the entire territory covered by adopted or in-progress plans was estimated. If new plans [11-15] will include 2-3% public green areas (between Belgrade Waterfront and the IMT and FMO factory zones), we can expect that on 540 ha intended for complete transformation and new



residential zones on the left and right banks of the Sava River, there will be only 10-15 ha of public green spaces, including the existing park on the riverbank.

Unlike public green areas, which exclusively refer to publicly owned land, the minimal percentage of greenery in direct contact with the ground includes other uses, permeating the entire area covered by the plans. In the first step of the analysis, the share of green areas in direct contact with the ground was calculated for all planned blocks (excluding the traffic network) in the adopted plans. The analysis shows that the percentage of green areas in direct contact with the ground in Belgrade Waterfront [1] decreased from 18.8% to 13.6%, representing a loss of 3.7 ha through the 2022 plan amendments [2]. This data is particularly concerning, given that greenery in direct contact with the ground was reduced not only in specific residential-commercial blocks but also in planned parks. For example, the amendments allowed that up to 70% of the existing Bristol Park could be paved.

In the area of the former IMT and FMO factories [5-10], the percentage of green areas in blocks in direct contact with the ground averages 22%, which is 1.6 times higher than in Belgrade Waterfront after the 2022 plan amendment. The highest percentage of greenery in direct contact with the ground is planned in the first phase of the transformation of the former factory complex (about 27%) [10], while the lowest is recorded in the WEST 65 complex [5] and the expansion of Airport City [6], only 8-10%. In Block 26 [3], which is planned for the highest construction intensity of business and residential buildings, the percentage of greenery in direct contact with the ground is 25%, or one-quarter of the block. In other words, the trend is not clearly noticeable. On the one hand, there is a drastic reduction in this parameter's value, while on the other hand, in some plans, the values increase. Given that this is the same type of urban transformation and the construction of new residential-business zones, it remains unclear what logic underpins such decisions.



Figure 3: Broader area of the Sava River – an estimated 12% of greenery (65ha) in direct contact with the ground (1 tree = 1ha)



In the next step of the analysis, the average percentage of greenery in direct contact with the ground for future blocks in plans still under development, including the expansion of Belgrade Waterfront [15], was calculated. It was concluded that around 18% of all blocks could be planned for green spaces in direct contact with the ground, which would amount to around 65 ha. Relative to the total area of 540 ha, this would represent only 12%. Given that the planned facilities are predominantly intended for housing, the question arises as to which population the planned capacities will be realized for, as well as what social standards will be achieved.

Population and Housing Units

In the area covered by the analyzed plans, approximately 10 million square meters are planned (including capacities from both adopted and draft plans). Of this, more than 6 million square meters are designated for residential purposes. Some of the analyzed plans lack data on the planned number of inhabitants, the average apartment size, and the number of housing units. These numerical details are crucial for dimensioning transportation and utility infrastructure, as well as public services like schools, kindergartens, and health centers. Inaccuracies in these estimates can lead to errors during plan implementation and subsequent use of the space, often requiring significant budget expenditures for corrections.

Based on certain approximations, using data from the 2022 Census and planning standards, it can be estimated that around 75,000 apartments (with an average gross apartment area of 80 m²) and 180,000 residents (the average household size in Belgrade is 2.4 people) will be planned for the entire analyzed area of 540 hectares. However, the adopted plans [1-10] envision apartment sizes ranging from 120 to 310 m² (sic!), justified by the concept of "luxury housing." These estimates, not based on research but on arbitrary assumptions, suggest that the average apartment in the adopted plans would be 146 m², meaning that the area would only accommodate 41,000 apartments and 98,000 residents—almost half of what Belgrade's average would suggest.

These complexes do not include social housing, nor do they provide spaces and facilities for non-commercial sports and recreation. The already scarce green spaces in direct contact with the ground are further reduced with every amendment and addition to the plan. Furthermore, it is difficult to imagine an average Belgrade family with children, an elderly household, or a young couple with a median income (77,571 RSD in May 2024) or an average income (100,170 RSD in May 2024) being able to afford living in these residential complexes.

Thus, the question arises: for how many residents, and based on what demographic and economic policy, are millions of square meters of residential space being planned in the heart of Belgrade, in the wider area of the Sava River waterfront? How many people will work in this area? How will they move, and in what directions? How much infrastructure of all kinds will be needed? The millions of planned and already built square meters lack grounding in expert estimates from planners, demographers, and urbanists regarding the population growth of Belgrade and the city's developmental needs. So, what are they based on? What is the rationale behind planning whose



harmful consequences far exceed the positive effects in terms of quality space for living, working, and recreation?

All adopted plans have been passed through the required procedures, and all planning solutions leading to the complete transformation of this area were proposed by participants in the planning process, with the majority acceptance of representatives of the state and profession. Sometimes by acclamation, and sometimes as an "inevitable" adjustment to market conditions. Yet, uncontrolled spatial interventions over the past decade, resulting from urban planning and the force with which they are implemented despite basic common sense, inevitably point to the existence of a broader phenomenon. What kind?



Figure 4: Broader area of the Sava River – estimated number of inhabitants according to the plans (white) and according to the average household in Belgrade according to the Census 2022 (red) (one man = 500 inhabitants)

Conclusion

Over the past two decades, urban planning in Belgrade and Serbia has taken a radical turn away from the urban planning traditions, goals, and values of the latter half of the previous century. Although it formally retains old concepts and claims to rely on them, a fundamental shift in the planning paradigm has been implemented through urban plans and is now almost fully realized in the physical space. The Belgrade waterfront area, in terms of planned housing and commercial square footage, as well as planned public open and green spaces, is a clear and representative example of this profound change.

Since the adoption of the Belgrade Waterfront project plan and its implementation over the past decade, the exploitation of construction land, predominantly for residential and real estate market needs, has significantly intensified, especially in the former industrial zones—such as the factory complexes in the central part of New



Belgrade. Given that hundreds of hectares of land along the Sava River are still the subject of ongoing urban planning, it is reasonable to expect that this trend will continue. Existing public assets, particularly Ada Ciganlija, the Belgrade Fair, the Old Sugar Factory, Terazije terrace and the Old Fairgrounds, are therefore at great risk. The result will be clusters of towers and high-rise buildings blocking the river, contradicting all ideas of sustainable development and a city that belongs to Belgrade's citizens and has its own cultural identity.

In this urban growth policy, public facilities represent a negligible percentage of the planned and realized developments, which is paradoxical given the millions of square meters planned for housing. Since the adoption of the Belgrade Waterfront project plan, there has been a continuous decline in social, ecological, and accessibility standards. This reduction particularly affects public green spaces. Already at minimal levels within the Belgrade Waterfront project, they are practically eliminated in all other plans. Additionally, there is a significant decline in transportation accessibility around large New Belgrade brownfield transformations.

On the other hand, the trend related to the minimum percentage of green spaces in direct contact with the ground is not consistent, as this percentage varies from 8% to 27% in mixed-use blocks in adopted plans. This drastic difference can be attributed to the quality of the planning team's work and suggests that awareness of the importance of this parameter is at a very low level. As a result, decisions regarding its application for the same type of urban transformation are made arbitrarily, without a clear strategic stance at the city level. It is particularly important to note that higher-order plans stipulate that in open blocks, the percentage of greenery in direct contact with the ground should be at least 30%. While not all new residential and commercial zones are categorized as open blocks by typology, there is no argument for not applying this minimum percentage, especially given the construction intensity in these new zones. There is no doubt that we are witnessing a significant wave of financialization of urban construction land – a global phenomenon that some local authors recognized in Serbia years ago. Financialization is defined as a significant increase in the role of financial markets, mechanisms, and institutions in the functioning of the economy, the work of its institutions, and the setting of economic goals. Understanding financial motives is crucial at this moment to grasp global, regional, and local economic crises.

Urban construction land, as a major economic resource, has become a target of financialization. If institutions are unable to protect the city from the incursions of various investors (from banks and funds to real estate markets, the construction industry, and small investors – owners of individual parcels), who seek to maximize their profits, planning becomes a portal that enables the generation of revenue in real estate markets, derived from financial activities and property rights (interest, rent, dividends, capital gains).

Instead of creating and protecting public goods and the public interest, spatial and urban planning now serve financial exploitation of cities for the benefit of domestic and international financial elites. The millions of planned square meters in the analyzed area, along with the glaring deficit of greenery and public spaces, are not intended for Belgrade's citizens, nor for the assumed new residents for whom we have



reason to believe will move to our city. They are solely designed to generate income on financial capital markets.

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