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The Transformation of Dorćol Power Plant: Triggering a Sustainable Urban Regeneration or Selling the Heritage?

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Abstract: The power plant “Power and Light” (1932, Belgrade) was the first one to generate alternating current in Serbia. Situated along the Danube river, it represented a part of an industrial area positioned in the Dorćol neighborhood, close to the urban core. Since 2005, the whole area has been exposed to a significant transformation into a luxurious residential and commercial complex, triggered by the intentions of private investors and directed by the ideas of changing city authorities. Considering the unpredictable local context created by the dominant post-socialist transitional economy, the article focuses on the sensitive relationship between the social sustainability of the ongoing urban regeneration plans and the emerging neoliberal forces targeting the areas of industrial heritage. Consequently, the case of the Dorćol ex-power plant and the anticipated changes in its urban surrounding are analyzed according to the selected principles of social sustainability. Revealing numerous controversies, both on the level of preferred urban policies and their questionable application, this case addresses the problems of heritage (re)use and regeneration in an environment of fast-shifting governmental priorities and financial flows, with reduced receptivity to sustainable solutions.

Keywords: urban regeneration; industrial heritage; social sustainability; neoliberal urban transformation; post-socialist transition



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1. Introduction

The first power plant with alternating current in Belgrade was built in 1932, 40 years after the discovery of alternating current and Nikola Tesla's only visit to Belgrade. Named “Power and Light”, it was built in Dorćol, in the industrial area developed between the end of the 19th and the beginning of the 20th century. Situated on the right bank of the Danube, with a purpose-built river port, it used lignite from the Kostolac coal mine. It was gradually disconnected from the system and finally stopped working in 1967, falling into decay.

However, after 2000 and political changes, Serbia's socio-economic transition accelerated through greater private investments and new land management policies. The privatization of former state-owned public companies opened various possibilities for investors (including easier access to potential building land), while the constitutional and legislative changes enabled a further introduction of a neoliberal framework into political and economic processes (e.g., the model of state land privatization) [1]. Following these changes, the city administration of Belgrade established its own development policies, prioritizing cooperation with private investors. The river port Dorćol (so-called Marina Dorćol) was no exception, representing one of the first cases that aimed to transform a culturally and historically valued ex-industrial area. Its position on the riverbank, close to the historic core, attracted the international investment and construction companies interested in its huge potential as one of the most valuable real estates. After the 2013 Decision of the Government of the Republic of Serbia, the complex of the power plant received the

status of a protected cultural site with the specified protection measures of its architectural and environmental values [2]. As one of the most prominent cases of ex-industrial regeneration in Belgrade, it has become extremely important for establishing social responsibility regarding the activation and reuse of similar sites. However, the entrepreneurial approach applied by the city authorities has prioritized the development of mega-projects that do not empower local communities but deepen social inequality and increase job uncertainty, while lowering investments in public services [3]. Therefore, this article focuses on the sensitive relationship between the anticipated large-scale/property-led urban regeneration and the social sustainability of the ongoing transformation, simultaneously outlining the possible improvements of the process. Under the term urban regeneration, we refer to a wide-ranging holistic policy intervention that incorporates physical, social and environmental regeneration, with strategic aims that are amenable to the goals of sustainable development [4,5]. In this particular case it is also a large-scale intervention that transforms the specific urban fabric of the ex-industrial area.

Although some authors (e.g., Block and Paredis [6]) emphasize the importance of mayors-entrepreneurs in connecting different actors of urban development and avoiding rigid governing bodies, the context of Serbia, based on the post-socialist transition, needs institutions that are able to ensure the implementation of democratic principles in order to avoid social exclusion and potential authoritarian obstacles to democratic procedures. Furthermore, the issue of social sustainability is closely related to the principles of fairness, equality and inclusion, even in the prevailing liberal and neoliberal setting, which favors market rationality over collective decision-making and the public sector [7,8]. The notion of fairness in urban life, overburdened by rapid urbanization and consumerism, was elaborated on as the right to a city by Lefebvre [9], while Harvey further explores this concept by addressing the power issues related to urbanization, emphasizing the superiority of collective power [10]. The question of power is also considered by other scholars as crucial for determining the physical, economic, social and environmental reality of urbanization [3,11,12]. The fair democratic governance is very important for the ex-industrial regeneration, since it should connect this process with the different levels of power, usually manifested as the conflicting interests of various stakeholders [12]. Furthermore, the local community and other less powerful stakeholders could become even weaker if the mechanisms of wider social inclusion and participation are not embedded in all phases of the decision-making process [3]. Therefore, the modern policy and practice of urban regeneration of ex-industrial areas are based on the values and principles of sustainable urban development defined by various international documents adopted during the past 30 years. Goal 11 of the UN 2030 Agenda addresses the protection and safeguarding of global cultural and natural heritage, highlighting the importance of inclusive and sustainable urbanization, as well as the participatory, integrated and sustainable planning and management of human settlements, which should provide universal access to safe, inclusive and accessible green and public spaces [13]. Based on these premises, the New UN Urban Agenda prioritizes renewal and regeneration based on integrated and participatory approaches, while preserving cultural heritage and avoiding spatial and socioeconomic segregation and gentrification [14].

In the EU context, urban regeneration has occupied an important place in urban policies and planning practice since the 1990s. The first EU-funded project targeting the sustainable urban regeneration of brownfield areas was RESCUE—Regeneration of European Sites in Cities and Urban Environments, initiated in 2002. It promoted cultural and regional identity by activating industrial heritage and achieving a high urban design quality [15]. Sustainable urban regeneration has also been developed through Urban Pilot Projects (UPP), URBAN Community Initiative and the EU URBACT network, integrating and homogenizing urban regeneration policies and aiming toward the problems of poverty, mitigation, employment, sense of place, social inclusion and participation, accessibility and public space quality [15–17]. In the UK, the project SUR:IM is a leading urban regeneration research consortium, serving as a model for similar projects from the EU (e.g., ROCK—

dealing with the link between cultural heritage and sustainable urban regeneration) [18]. A significant part of this project is dedicated to participatory approaches and social inclusion, sharing decision-making power between stakeholders [19]. The practice of urban regeneration, traditionally established in the UK, France and the Netherlands, has also spread to other member states and candidate countries, including Serbia.

Considering the presented theoretical background and the goals defined in the main international agendas included in the EU policies and practice, three principles have been distinguished as crucial for the socially sustainable regeneration of ex-industrial heritage sites:

- High quality urban design;
- Local cultural identity;
- Inclusive and participatory approach.

High quality urban design indicates the positive influence of architecture, urban and landscape design on existing urban structures, environmental and social circumstances and the protection of cultural heritage [15]. A flexible urban design, coupled with evolving policies and planning, is also recognized as an opportunity for community involvement [20].

Local cultural identity explains the importance of locational uniqueness, achievable through heritage conservation, contributing to a sense of community belonging [21]. Often of great architectural value, these ex-industrial buildings represent the constituents of urban fabric influencing the citizens' identity [15]. Therefore, the applied urban design principles should both protect existing urban structures and create their new value and meaning (i.e., identity) [22].

Inclusive and participatory approach explains the importance of creating or reinforcing an inclusive community for all residents (but also all relevant stakeholders) by elected local representatives or community associations [23]. An integrated participative approach represents the degree of civic engagement and vitality of democracy, through which, elected representatives can fight for improved public services [24]. Participation also correlates positively with the sense of community, increasing the overall social wellbeing [25].

These principles will be examined in order to evaluate the social sustainability of all of the relevant elements of the anticipated transformation of the Dorćol power plant complex. The evaluation is conducted according to the set of criteria and indicators derived from them. The results will provide an insight into the level of social sustainability incorporated into policies, plans/proposals and business arrangements conducted by the Belgrade city authorities, in the period of 2005–2021.

The article consists of six parts. After the Introduction, the sources and applied methodology are presented, while the case study introduces the research area and provides a detailed overview of the relevant activities of the city authorities, underlining three main periods important for the transformation process. The fourth part presents the results of the comparative analysis conducted for all three periods, focusing on the aspect of social sustainability. The fifth part discusses the obtained results and their possible consequences for the further process of urban regeneration, whereas concluding remarks provide guidelines for the future practice in the local context of Serbia, as well as for the similar transitional ex-industrial settings.

2. Materials and Methods

The complex of the ex-power plant and the nearby river port (from now on—Marina Dorćol) represents a spatio-functional unit that should be studied integrally (Figure 1), although planning documents targeting this area (e.g., the detailed regulation plan of Marina Dorćol [26]) recognize the plot with the power plant as a sub-unit with its own cadastral number (Figure 1—orange section).

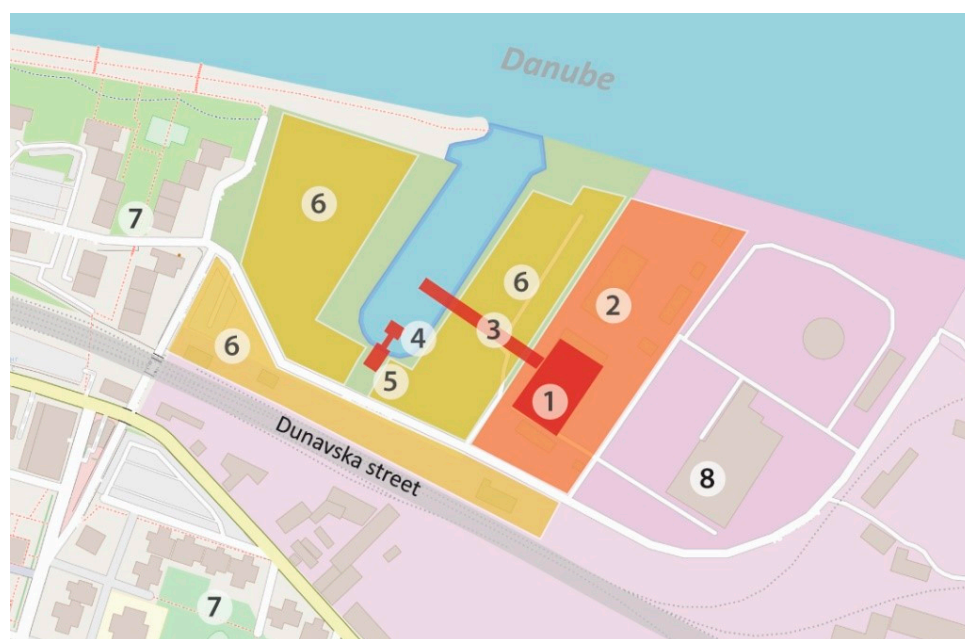


Figure 1. The complex of Marina Dorćol and the ex-power plant: (1) power plant building; (2) power plant cadastral plot; (3) power plant crane; (4) water pump; (5) filter facility; (6) Marina Dorćol cadastral plot; (7) multi-family housing; (8) heating plant complex. Source: Authors.

The study of the power plant complex and Marina Dorćol was based on the review of available documents and resources—the Master Plan of Belgrade [27]; the detailed regulation plan of Marina Dorćol [26]; the Decision of the Government of the Republic of Serbia for the power plant protection [2]; the detailed regulation plan for linear park [28]; the competition proposals/results for linear park [29]; information regarding the anticipated process of transformation (media coverage of the various activities conducted by the local and national government, as well as other stakeholders) [30–41].

The methodology consists of four successive methods: literature review, case study, evaluation and comparative analysis. An extensive literature review was conducted and presented in the introductory and methodological part—i.e., the relevant theories, documents, agendas and projects were studied and considered as a basis for identifying the key principles of socially sustainable urban regeneration and deriving a set of criteria and indicators that will be used for the evaluation and comparison. The next step was a method of a descriptive case study, as a methodological variant focusing on a typical case, as a representative of a more general practice [42]. Consequently, the case of the Dorćol power plant was chosen as an example of urban regeneration practice anticipated in the context of a transitional socio-economic setting, targeting the industrial heritage of a post-socialist city (Belgrade). The case study was conducted for three main periods of urban development (2005–2012; 2013–2018; 2019–2021—Figure 2), through the methods of document review and the observation of participants and activities, especially those adopted and carried out by the city authorities. Further on, an evaluation of these activities was applied for each period, examining the level of compliance with planning documents and the related political decisions in order to identify the level of anticipated social sustainability of urban regeneration. Finally, a comparative analysis of evaluation results was implemented.

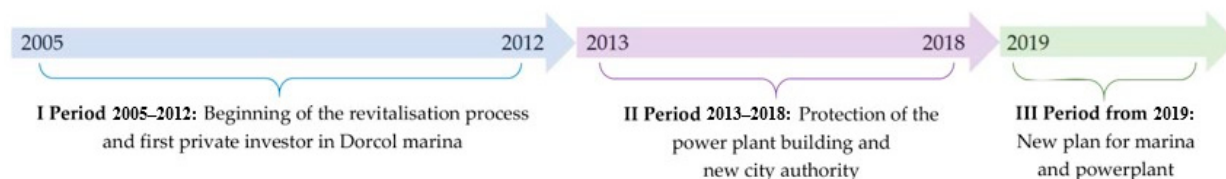


Figure 2. The complex of the ex-power plant and Marina Dorćol—the main periods of the anticipated regeneration. Source: Authors.

The level of social sustainability was defined according to the key principles of socially sustainable urban regeneration, identified from the theoretical framework and the EU documents and practices: (1) local cultural identity, (2) high quality urban design and (3) inclusive and participatory approach. The set of criteria and indicators was developed accordingly (Table 1).

Table 1. The main principles, criteria and indicators of socially sustainable urban regeneration derived from the relevant studies, projects and agendas in the EU.

Key Principles	Criteria	Indicators	Author(s)/EU Agendas and Projects
High Quality Urban Design	Permeable street network	Permeability and connectivity with urban fabric	Wansborough and Mageean [43]
	Well-designed and maintained non-commercial public space	Coverage of the area (%)	RESCUE Project [15] ODPM [44]
	Acceptable density and mix of use levels	FAR Index (floor aspect ratio)	Porta and Renne [45] EU Ministers [46]
	High quality urban design with diverse range of buildings and public space	Diverse types and uses of buildings and public space	Igloo [47] Colantonio and Dixon [48] Carpenter [49]
	Creation and integration of places with symbolic value and meaning	Spaces that have symbolic value and meaning	Ujang and Zakariya [22] UN New Urban Agenda [14]
	Promotion of greater respect of nature	Areas with nature-based design	
Local Cultural Identity	Sense of place and identity	Spaces for performing arts, museums, festivals, farmers’ markets and local craft fairs, etc.	RESCUE project [15] Stubbs [50] Chan and Lee [21] Colantonio and Dixon [48]
	Sense of community pride	Landmark buildings, jewel parks, etc.	Ujang and Zakariya [22] UN Agenda 2030 [13]
	Protection of cultural heritage	Buildings and public spaces	URBACT [17]
Inclusive and Participatory Approach	Inclusion of diverse marginal groups in decision making, planning and design process	Presence of marginal groups in decision-making activities	RESCUE project, 2002 [15] Stubbs, 2004 [50]
	Social mixing, inclusion and cohesion activities	Events and cultural activities encouraging interaction between people of varying ages, incomes, ethnicities and abilities	ODPM, 2005 [44] Colantonio and Dixon, 2011 [48] Agger, 2010 [51]
	Involvement of local residents in decision making, planning and design process	Number of meetings	Sharifi and Murayama, 2012 [52] UN Agenda 2030, 2015 [13] URBACT project, 2015 [17]
	Network of local community associations	Number of organizations	Chan et al., 2019 [24] SUR:IM/ROCK project, 2019 [18,19]
	Accessibility of public services	Number of services	

The initial year of the analysis (2005) was marked by the first official decisions and planning documents related to the future of this ex-industrial site, whereas the selected periods were defined by the changes in the city authorities that influenced the shifts of urban policies, the economic model of urban regeneration and the dynamics of undertaken activities (Figure 3). The first period (2005–2012) begins with the adoption of the detailed regulation plan of Marina Dorćol and its sale to a private owner, and it ends with the transfer of ownership to another private investor. The second period starts after the decision of the Government of the Republic of Serbia to declare the building of the ex-power plant as a cultural monument, officially confirming its cultural and architectural value. The ownership transfer from the investor to the City of Belgrade marks the end of this phase. Finally, the third ongoing period is characterized by a new decision of the city authorities to resell Marina Dorćol to a new private investor.

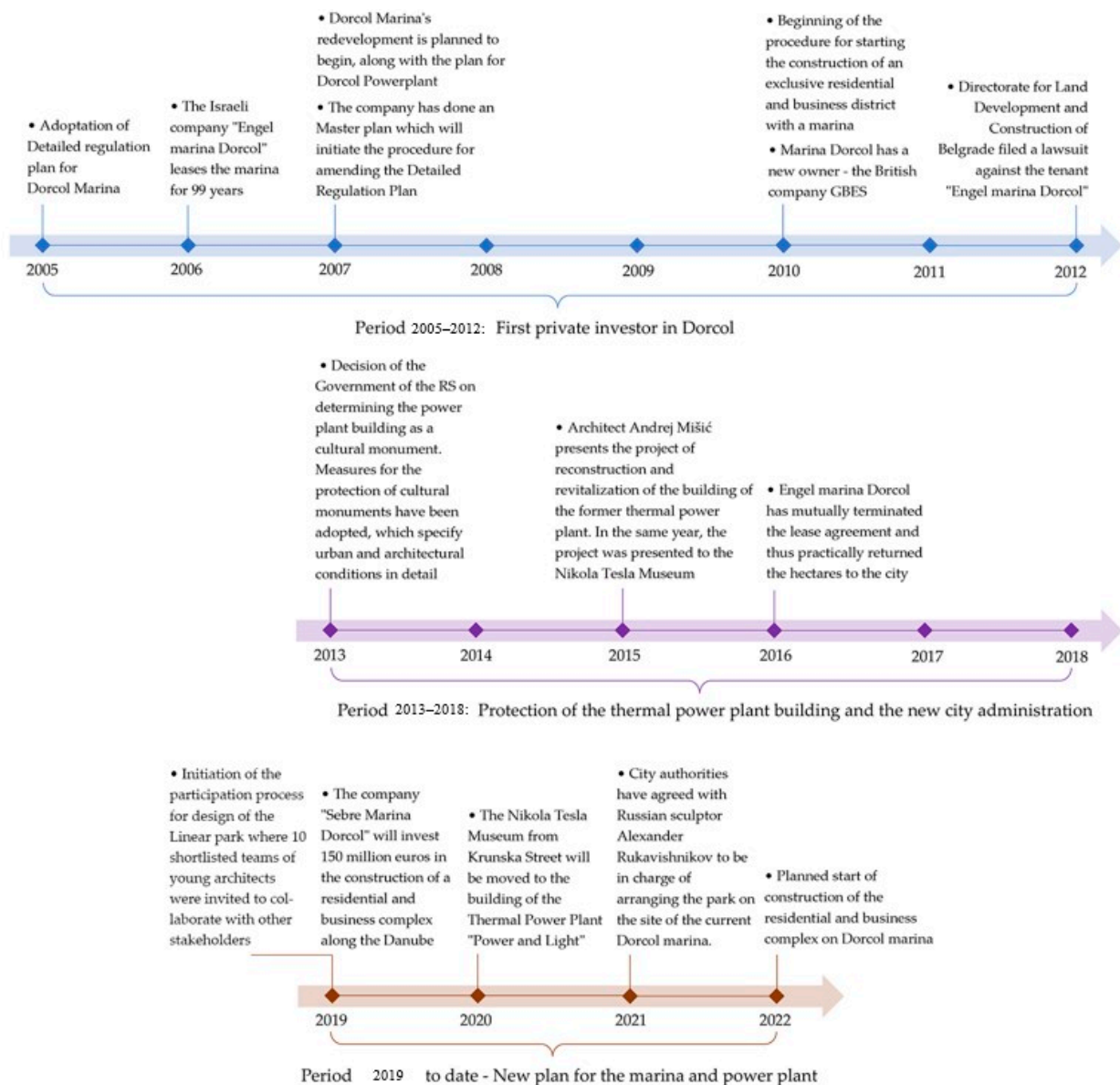


Figure 3. The timelines of activities that marked the anticipated urban regeneration of the complex Marina Dorcol with the ex-power plant. Source: Authors.

3. Case Study

The building of the ex-power plant is located in the central district of Dorcol, in the Belgrade municipality of Stari Grad. It belongs to the former industrial zone (3 km long) stretching from Marina Dorcol to the Pančevo bridge. The part that is still active is situated around the port of Belgrade, where warehouses and customs office are located. Nowadays, the complex of Marina Dočol is an unused city land, mostly fenced and with a forbidden access. The only exception represents a narrow strip next to a marina pool, where the facilities and boats belonging to a nautical club are located. The building of the ex-power plant was built between 1930 and 1932, according to the project of the Swiss Society for Electrification and Traffic from Basel, and it consists of several parts: the main building, a gantry crane with a sleeve, a pumping station and a filter plant (Figure 4). The building occupies three cadastral plots and has a cubic shape with a rectangular base of 2800 square meters and a skeletal structure. A dominant element of the building is a gantry crane, which uses two electric motors to connect a distance of 140 m between the pumping station and the Danube.

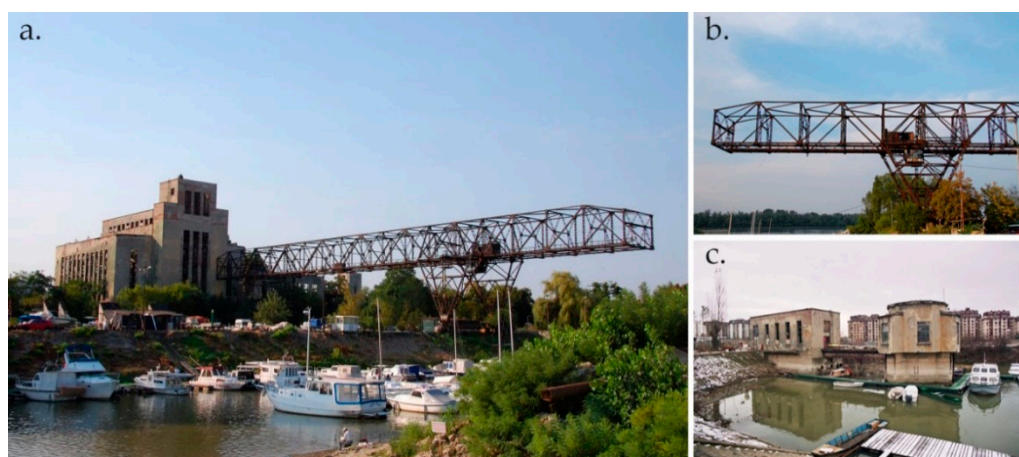


Figure 4. The main building of the Dorćol power plant: (a) gantry crane, (b) pump station and (c) filter facility. Source: Authors.

Its architecture reflects the modernist principles of the interwar European architectural practice. The use of modern materials (steel and glass), flat wall surfaces without ornaments and simple geometric shapes indicates the influences of the Bauhaus style [2]. Its significance as a former industrial complex is reflected not only in its architecture, but also in its role in the urban and social development of Belgrade, since electrification changed the habits of residents and enabled the application of new technical and technological achievements in traffic and telecommunications. Since 2005, this area has been recognized by the city authorities as an extremely valuable zone, intended for business and luxurious housing.

3.1. The Announcement of Private Investments (2005–2012)

The first step that started the process of the transformation of the Marina Dorćol was made in 2005, when the detailed urban plan of the central zone of the spatial unit of the Marina Dorćol was adopted. The plan, made by the Planning Institute of Belgrade, included an area of 7.45 hectares bordering the Danube regulation line to the north, the Danube energy complex to the east, the railway corridor to the south and the Danube I and II housing estates to the west. This plan includes only the pumping station and the crane of the thermal power plant complex (numbers 3, 4 and 5 on Figure 1), but not the main facility located outside of the scope in the neighboring energy complex “Danube”. The plan envisages protection conditions for the crane and pumping station facilities, which it retains and recognizes as significant objects of industrial architecture, in accordance with the opinion of the Institute for the Protection of Monuments of the City of Belgrade and the “list of industrial architecture facilities” in the Master Plan of Belgrade, on which, there is also the thermal power plant “Power and Light”. The plan states that “from the aspect of protection, in addition to preserving the facilities of the thermal power plant, it is necessary to affirm and preserve the existing function of the marina by introducing adequate facilities” [18]. It should be noted that, apart from the written letter of the Institute for the Protection of Monuments, at that time, there was no document that determines more detailed urban architectural conditions for the protection of buildings, which is stated in the plan itself.

The plan defines a maximum of 12 floors for buildings that are visual benchmarks and conditions of gradual reduction in floors in the direction of the marina. A total of 70,000 square meters of gross construction in the main construction zone is allowed. The maximum construction index is 3.5, while the occupancy rate is 60%.

In 2006, the Israeli company “Engel Marina Dorćol” received 2.57 hectares of coast along the Danube from the city administration for a period of 99 years. The company planned to first renovate the coastal fortification with 150 berths for boats and yachts, then to reconstruct the old crane and pumping station from 1932 and, only in the second phase, to build five

residential buildings with 12 floors, one business tower and a hotel [19]. In 2007, the company presented a conceptual solution for the future residential and business complex and plans for the renovation of the pumping station and gantry crane building (Figure 5).



Figure 5. Visualizations of the Marina Dorćol according to the project of the company “Engel ma-rina Dorćol”. Source: beobuild.rs (accessed on 24 June 2021).

Despite the ambitious ideas and intensive media coverage, the project Engel Marina Dorćol did not receive a building permit since the proposal revealed the intention to build over 140,000 square meters (almost twice as planned) and, consequently, to amend the detailed regulation plan [31]. In 2010, the company obtained a new owner—the British investment company GBES, with a partner, Light Blue Trading, from the Bahamas. On that occasion, it was announced that the procedure of obtaining a location permit had started and that the construction of an exclusive residential and business complex was scheduled for 2011 [32]. However, the planned activities were completely suspended during the next two years and accompanied by the lawsuit initiated in 2012 by the Belgrade Land Development Public Agency due to unpaid obligations [33].

3.2. The Heritage Protection and Governmental Changes (2013–2018)

In April 2013, the Decision of the Government of the Republic of Serbia was adopted, declaring the power plant complex as a cultural monument (Figure 1). However, a new city administration and a new mayor were elected in September, originating from the same political wing that governed the national level. The synchronization of power opened the possibility for a more efficient cooperation between two levels of administration. In 2015, on the occasion of Tesla’s birthday, architect Andrej Mišić presented his project of reconstruction to the Serbian Government, proposing the transformation of the Dorćol power plant into the Museum of Nikola Tesla (Figure 6). The contract between the city government and the company Engel Marina Dorćol was terminated in 2016, returning Marina to the city disposal.



Figure 6. The proposed transformation into the Museum of Nikola Tesla—visualization of the project by architect Andrej Mišić. Source: <https://divisare.com/projects/367485-andrej-misic-institute-museum-nikola-tesla> (accessed on 24 June 2021).

3.3. New Plans Ahead (2019–2021)

In August 2019, the Belgrade Land Development Public Agency published a new advertisement, triggering a new round of speculations related to the project Marina Dorćol. The public tender for the site was initiated at the price of RSD 3.8 billion, which is the estimated market value of four hectares [34]. In September, the Czech company MD Investments 2000 became a new owner, as the only bidder. The daughter company Sebre Marina Dorćol announced a future investment of EUR 150 million directed into a construction of a residential and business complex along the Danube. The construction was scheduled for 2021 [35]. The Deputy Mayor stated that the technical documentation for all facilities and contents should be approved by the Commission for Plans of the Belgrade City Assembly and in accordance with the conditions issued by the Institute for the Protection of Cultural Monuments [36]. However, the anticipated design of Marina (including the power plant as the Museum of Nikola Tesla) was announced during the official visit of the Serbian President to the Czech Republic in May 2021, before the official approval of the relevant expert bodies (Figure 7) [37].



Figure 7. Marina Dorćol project: another vision of ex-industrial regeneration announced by the new investor Sebre Marina Dorćol. Source: Facebook page of the Belgrade vice-mayor.

In the meantime, the development of the former railway corridor was initiated (2019), including the site of the Dorćol Power Plant and Marina. Based on the well-known concept of a linear park, the office of the city architect, in cooperation with the Belgrade Society of Architects, launched a competition for the conceptual solutions dealing with different spatial segments (Figure 8). This approach to urban regeneration and development was totally different from the previous practice based on the grand schemes introduced by investors. Apart from the model of open competition, which especially emphasized young authors, ten shortlisted solutions were invited to create a joint design and a development vision, based on a participatory process. The city administration also hired two expert associations, the Center for Experimental and Urban Studies (CEUS) and Belgrade Urban Living LAB (BELLab), which were supposed to apply a participatory approach in the process of creating the detailed regulation plan, within the Smart Cities program [53,54]. In May 2021, the plan, which also considers the public spaces within the Marina Dorćol complex, was completed and made available to the general public (segments 5 and 6, Figure 8).



Figure 8. Linear park—the development segments, including the area of Marina Dorćol (5) and power plant (6). Source: Centre for Experimental and Urban Studies (CEUS), ceus.rs (accessed on 24 June 2021).

4. Results

The evaluation of the selected relevant documents (plans/projects and governmental decisions), conducted for all three periods and focused on the complex of the Dorćol power plant and Marina, provides the information on the probable level of social sustainability proposed by the officially presented visions of urban regeneration. Table 2 incorporates the summary of evaluation results, structured around three selected principles of social sustainability and elaborated through the list of related criteria and indicators.

Table 2. The summary of the evaluation results for periods 2005–2012, 2013–2018 and 2019–2021.

Key Principles	Criteria/Indicator	2005–2012	2013–2018	2019–2021
High Quality Urban Design	Permeable street network/Permeability and connectivity with urban fabric	Semi-permeable in the mixed-use complex; power plant connected with urban fabric	Semi-permeable in the mixed-use complex; power plant connected with urban fabric	Semi-permeable in the mixed-use complex; marina and power plant connected with urban fabric and linear park
	Well designed and maintained non-commercial public space/Coverage of area (%)	12% in the immediate surrounding of power plant	12% in the immediate surrounding of power plant	32% around the power plant and linear park
	Acceptable density and a mix of use levels/FAR Index (floor aspect ratio)	3.5	3.5	3.5
	High quality urban design with diverse range of buildings/Diverse types and uses of buildings and public space	no	yes/in the immediate surrounding of power plant	yes/in the immediate surrounding of power plant and linear park
	Creation and integration of places with symbolic value and meaning/Space with integrated symbolic value and meaning	no	yes	yes
	Promotion of greater respect of nature/Areas with nature-based design	no	no	yes/linear park
Local Cultural Identity	Sense of place and identity/Spaces for performing arts, museums, festivals, farmers' markets and local craft fairs, etc.	no	yes/plan for the Museum Nikola Tesla	yes/plans for Museum Nikola Tesla and multi-functional linear park
	Sense of community pride/Landmark buildings, jewel parks, etc.	Power plant complex	Power plant complex, Museum Nikola Tesla (revitalized power plant)	Power plant complex, landmark residential complex, Museum Nikola Tesla (revitalized power plant)
	Protection of cultural heritage/Buildings and public spaces	General protection measures of the area by the detailed regulation plan of Marina Dorćol	Protection of the power plant complex—declaration of cultural monument	Protection of power plant complex—declaration of cultural monument
Inclusive and Participatory Approach	Inclusion of diverse marginal groups in, decision making process/Presence of marginal groups in decision-making activities	no	no	yes/inclusion of some organizations in the design process of linear park
	Social mixing, inclusion and participatory activities/Events and cultural activities encouraging interaction between people of varying ages, incomes, ethnicities and abilities	no	no	yes/design workshops and discussion panels
	Involvement of local residents in decision making process/Number of meetings	0	0	>10
	Network of local community associations/Number of organizations	0	0	>5
	Accessibility of public services/Number of services	0	0	2

4.1. High Quality Urban Design

The first period of urban regeneration addressed the quality of urban design only on a general level, through the detailed regulation plan, which established common parameters: construction limitations, protection measures and guidelines regarding the public space design and free access to the riverbank and Marina. The initial master plan proposal from 2005 envisaged a mixed-use complex with a restrictive car and pedestrian access. Therefore, the traffic network could be characterized as semi-permeable and connected only to the commercial zones of buildings adjacent to the Marina. The complex of the Dorćol power plant is well-connected to the surrounding urban matrix, being fully intended for public and cultural purposes. The public space around the power plant is well-designed, but remains the only non-commercial public space in the master plan, covering approximately

12% of the total open area. The master plan for Marina Dorćol did not achieve a necessary typological diversity and it does not include any concern for integration with other facilities. Additionally, there are no elements tackling the problems of meaning and symbolism by introducing new design elements into the existing urban identity. Landscaping is reduced to conventional elements, without the use of the contemporary landscape features based on the nature-based solutions.

During the second period, the topic of urban design was elaborated on more, especially by the government decision on the protection of the power plant. However, the decision did not bring about any changes, except in terms of planning a greater diversification of activities and improving the area identity. These elements were also included in the proposal by architect Mišić. The changes were limited to the power plant complex, and the theme of urban design was still subordinated to the rigid framework of plans and laws, and was therefore almost non-existent. The city government and a private investor did not release any plan related to the treatment of public spaces around the power plant, providing only scant project visualizations to the public.

The last analyzed period brings a significant step forward, considering the urban design quality, primarily due to the initiation of the project of the linear park, which also includes the public spaces of the Marina and Dorćol power plant complex. The construction of a pedestrian and bicycle walkway is also planned, connecting the area to a nearby residential zone and improving the overall permeability and connectivity. However, the problem of a limited permeability remains unsolved in the anticipated mixed-use area of the Marina. According to the authors of the winning competition design for segments 5 and 6 (which includes the power plant and Marina complex), the landscape design was based on the premise of the 'fourth nature', linking nature and technology, infrastructure and landscape [38]. Furthermore, the introduction of footbridges should enable the formation of new vistas and ambients, improving the design quality of public spaces while adding new meaning and increasing the symbolic value of the place.

4.2. Local Cultural Identity

The 2005 detailed regulation plan of Marina Dorćol pays general attention to the preservation of architectural values and authentic ambience, especially regarding the sensitive position and visibility from the Danube, as well as the interaction with the retained industrial heritage and its general surrounding [26]. However, the plan does not include any measures targeting local cultural identity, its vibrancy and social sustainability. Simultaneously, the master plan of Belgrade underlines the modern architectural principles in creating a new iconic image of the Marina, but without addressing the local cultural identity and heritage, except in terms of adhering to conservation measures [27].

After the decision on the highest protection status of the power plant, the focus was shifted to the change in use. Additionally, the integrity and connectivity of all elements, as well as their preservation through program and activities, were highlighted [2]. Consequently, the adopted decision elaborates protection measures more than the detailed regulation plan from the previous period, creating better legislative conditions for the preservation of architectural identity and the future, updated (re)use of the power plant complex. The design proposal for the Museum of Nikola Tesla also follows these guidelines, contributing to the local identity and strengthening the sense of community by proposing a remodeled, potentially iconic public space around the power plant. However, the public space of the Marina remains isolated, surrounded by a private residential complex envisaged by the 2005 proposal of transformation, which neither complements nor upgrades the expected urban identity [30].

After the master plan and the detailed regulation plan for the linear park were adopted in 2021, the issues of identity and its preservation were reconsidered and further elaborated on in the final proposal, which consists of ten units designed as a multi-functional green infrastructure with diverse public space typology and contemporary features (e.g.,

pedestrian bridges, playgrounds, sports facilities, urban furniture, etc.), including public spaces around the power plant and Marina [29].

4.3. Inclusive and Participatory Approach

From the very beginning, the city administration has led the process of urban regeneration as an exclusive process, initiating the development and adoption of the detailed regulation plan of Marina Dorćol as a regulatory precondition for the arrival of investors. Until 2013, the whole process was considered to be only a business arrangement between two parties—the city administration and investors, whereas the public interest was not even considered. The development of plans and projects was not based on any participatory activity initiated by the authorities, leaving numerous possible stakeholders aside. The investor (Engel Marina Dorćol) also had its exclusive project envisioning a residential and business complex, totally ignoring the parameters embedded into the officially adopted planning documents.

Between 2013 to 2018, the synchronization between the national and the newly elected city government influenced the increasing interests of the national government, although without an official change in jurisdiction. Therefore, it was not surprising that the project of the Nikola Tesla Museum was directly presented to the Serbian government [39], although it is unclear how the author obtained this privilege, without any public call or competition, which is supposed to be a mandatory procedure for all public and culturally significant sites. In this way, the process of inclusion of the wider professional public was seriously disrupted, some unilateral ad hoc decisions that bypassed the usual procedures were obviously made and the further undermining of any public participation was achieved, excluding the stakeholders without sufficient political (and financial) power.

The third, ongoing period of anticipated regeneration brings a partial change in the applied model in which the city administration becomes more aware of its own role in the process. The new deputy mayor acts as a city manager-entrepreneur, directing the process of urban regeneration through his personal engagement. The current outcome of this shift represents a selection of another investor, as well as the initiative that led to the production of the plan for the linear park, based on the participatory process and the principles of social inclusion. Consequently, the city authorities delegated the Center for Experimental and Urban Studies (CEUS), as an expert association, to mediate a series of participatory activities within the project Smart Cities: design workshops, surveys and discussions in focus groups. The representatives of various stakeholders—citizens, local community associations, experts and the representatives of city authorities—were invited as participants of the process leading the final design and program as the basis for the future detailed regulation plan of the linear park [28].

5. Discussion

The case of Marina Dorćol and the ex-power plant complex reflects the emergence and development of a neoliberal approach to urban regeneration, within a post-socialist transitional framework of socio-economic changes. Although the process of anticipated transformation has been continuous since 2005, three main periods were identified in order to provide a better insight into the modifications that appeared due to changing interests, political (dis)balance, ad hoc decisions and accompanying legislative steps. The city administration has played a major role in all three phases, but the shift has been made towards the leadership-based governance with the mayor-entrepreneur who directs the process of urban development. However, the gradual change in the attitude towards the key principles of socially sustainable urban regeneration has also been made, directing the process of planning and management in line with the sustainable goals of cultural heritage preservation and sharing the decision-making power between various stakeholders.

In the initial period, the dominance of the neoliberal approach conducted by the city administration was evident. The entrepreneurial activities and business arrangements with investors were conducted without any established model through city institutions still

organized as the remnants of the former socialist system. This gap between the preferred vision of profit-led regeneration and the inherited institutional setting had a negative impact on the transformation of the Dorćol power plant and the Marina. The regeneration process began in a legally inconsistent and non-transparent atmosphere, resulting in a discreet city-to-investor business arrangement instead of being a project of wider public inclusion. Furthermore, the detailed regulation plan for Marina Dorćol seemed to be exclusively tailored to that business arrangement, since it resulted in a master plan of the area that maximized all profit parameters (e.g., the number of square meters of office and residential space), while neglecting existing local specificities. The plan also did not consider any urban and/or architectural articulation of the future power plant complex and its surrounding. In this way, the rights of many stakeholders (primarily local communities) to express their interests and participate in the process of creating and adopting the master plan were ignored.

It seemed that the planning and regulatory conditions for sustainable regeneration were finally created in 2013, when the Serbian government declared the decision for promoting the power plant complex into a cultural monument. Unfortunately, this process also went in a non-transparent and non-inclusive direction when the project for the Museum of Nikola Tesla was directly presented to the government, without prior compliance with the obligatory legal procedure that requires the organization of open architectural competitions.

The current period of regeneration does introduce some new features in the process of regeneration, reinventing the role of city administration in a more participatory framework, but, again, without the full respect of the principles of social sustainability. The 'new-old' city government has become more aware of the public, as well as the other interested stakeholders, which has led to a new change of investor (as a private partner in the regeneration process) and has initiated a set of activities focused on the new detailed regulation plan for the linear park. Unfortunately, certain ad hoc activities (e.g., inviting a prominent Russian sculptor to design the public space around the power plant) could jeopardize and disrupt the newly introduced steps toward the community and contextually conscious participatory design, raising further doubts about the real motifs of the declarative public engagement. Additionally, the actual impact of the ongoing planning and decision-making process still has to be verified regarding the achieved (if any) level of social sustainability.

6. Conclusions

The comparative evaluation of three successive periods defining the urban regeneration of the Dorćol power plant complex and Marina reveals that the selected criteria of social sustainability were largely not respected, especially during the first two phases. The principles of high quality urban design, local cultural identity, inclusion and participation were almost completely neglected, while the city government's collaboration with private investors was conducted as an exclusive business arrangement.

The process of urban transformation of Marina Dorćol and the ex-power plant complex certainly influenced the urban regeneration approach of some later mega-projects in Belgrade, one of the most prominent being the "Belgrade Waterfront", which occupies approximately 400 hectares of the central city land on the right bank of the Sava river. It is crucial to further develop and expand the identified positive tendencies in the participatory process of creating plans and urban design transferring them into a decision-making process regarding urban legislation and policies. These experiences are not only important for the city of Belgrade, which has several areas with similar ex-industrial character, but can be useful for other capital cities in the Balkans, given that they share similar planning and legislative systems, social-economic context and post-socialist legacy, which still influences the condition of the urban environment.

In order to improve the existing approach to the urban regeneration of Belgrade, it is necessary to learn from the rich experience of European cities, such as Barcelona and Seville. This primarily refers to the search for innovative solutions that will reconcile the often conflicting interests of global business on the one hand, and marginalized local groups on

the other. One possible solution is the Glasgow experience, where the city's art, culture and re-imagining have become focal points of a new vision of urban regeneration. We should certainly be aware of the ambiguity of the "Bilbao effect", which carries the threat that the problems of social polarization and fragmentation will not be recognized due to the shiny splendor of the iconic city.

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