

**MArch. Olivera Dulić<sup>1</sup>**

<sup>1</sup> PhD student, Faculty of Technical Sciences, University of Novi Sad

## **PROBLEM OF BROWNFIELD SITES IN SERBIA**

### **Abstract**

Abandoned brownfield sites occupy a large part of the construction land, which is an important resource for the sustainable planning and development of cities of the future. The number and size of brownfield sites in Serbia can be considered devastating. The aim of this paper is to present the current state in the field of brownfield regeneration in Serbia, to highlight its capabilities, and the limitations that arise in active involvement in the process of land recycling. The revitalization of brownfield sites provides a unique opportunity for the implementation of various sustainable strategies, like the low carbon approach. Brownfield problem is recognised at all government levels, and the need to take part in the regeneration process is confirmed. The term brownfield becomes used term in all media resources, which will result in increasing the level of awareness among all citizens of Serbia on the sustainable development of their cities.

**Keywords:** *brownfield sites, regeneration, sustainable urban development, construction land*

### **INTRODUCTION**

One of the resources that will be the foundation for the sustainable growth of cities in the future is construction land, from whose usage depends the quality of life of residents in urban areas. Brownfield sites are part of construction land that was previously developed and used, and due to the economic, financial and normative-political reasons, was abandoned (Stojkov, 2007). Brownfields are often created from former military and industrial complexes, abandoned utilities and infrastructure sites, warehouse and

retail locations that take up attractive places in the city (PALGO Centar, 2008). They represent the negative phenomena in the cities because they contribute to the creation of bad environment, and are often accompanied by pollution of soil and groundwater.

Abandoned land in the cities is the result of the transformation of the economic system within the community. Demand for the products of traditional industries decreased in the early 80-ies of XX century, which led to the appearance of the brownfields, job losses and a reduction in the number of residents in the immediate vicinity of a brownfields. Along with the development of the service sector, industrial sites had been moved to the peripheral zones of the city, which, along with the abandoned road infrastructure, caused the increase in the number of abandoned sites in the former heart of the city (Perić and Maruna, 2012). Brownfield problem is a significant part of the problems faced by local communities in Serbia, but also in Europe, and its elimination leads to better and more pleasant life of the urban population.

#### CAUSES AND CONSEQUENCES OF BROWNFIELD EMERGENCE IN SERBIA

The process of de-industrialization in the cities of Serbia was encouraged by the global economic and financial crisis, which led to a large difference in the form of territorial concentration of material resources in the regions of Belgrade and Novi Sad. Differences in the level of development of the regions are a big problem, because it results in spatial polarization, specialization and fragmentation of elements of industrial structure in the urban fabric of the city, and along the corridors and roads (Zeković, 2009). The processes of privatization, bankruptcy and restructuring are the most intense in the area of industry, which brings major socioeconomic consequences, downsizing the number of employees and significant impact on the spatial imbalance in regional development. The concepts of decentralization and partial demetropolization, which were a significant part of the Spatial Plan of the Republic of Serbia (1996), were not conducted because of the accumulated socioeconomic development issues in the industry, the impact of the transition recession and market factors, and the general macro-economic policies, the lack of regional policy, competition policy and innovation, as well as the lack of impact of the institutional framework and other factors (Zeković, 2009).

Brownfield sites in Serbia represent a significant problem, and over the past years, it has not been done much in practice to find a solution. As a result of a combination of mass de-industrialization of the economy and the reform of the defence system, a large number of commercial and military facilities, as well as large tracts of building land, remained completely abandoned or underutilized (Stalna konferencija gradova i opština, 2011). These sites also represent economic, urban, social, environmental and aesthetic problems. The biggest obstacle for resolving the issue of brownfield sites in the territory of Serbia is certainly a lack of systematic and organized approach to regeneration on the state level. Occasional

examples of good practice occur more as a result of activities of certain municipalities, caused by concrete investment projects important to the local economy (Stalna konferencija gradova i opština, 2011).

Municipalities in Serbia suffered bouts of ruthless investors who want to build industrial, warehousing or commercial facilities on greenfield sites. Giving up or slowing down of such actions is necessary in order to preserve agricultural land, and the existing urban structure. The idea of a compact city, which includes the development of existing land resources, is now gaining public support. This estimate is based on two factors: the expectation of further aging of the population in Serbia, as well as the orientation of the inhabitants of the city centre (Stojkov, 2007).

### REGENERATION POSSIBILITIES OF ABANDONED SITES

The number and size of abandoned sites in Serbia can be considered devastating. In addition, the fact that these sites are viewed as a necessary evil, for which there is no help, is another devastating circumstance, and a great missed opportunity of Serbian cities. In fact, brownfield sites have a significant possibility of increasing the attraction of domestic and foreign investors, if in solving their problem community approaches in an adequate, systematic manner.

As stated by B. Stojkov, the problem of regeneration of brownfield sites "requires vertical and horizontal coordination" (Stojkov, 2007). Vertical coordination means that the problem should be approached from three aspects: at the state level, then regional, and finally, at the level of cities. At the state level, this concept is implemented through the regulation of the internal strategy and national legislation. At the regional level, the problem of brownfield sites can be determined through various regional development schemes that would attract investors, as well as through other instruments of regional competence. Finally, at the level of municipalities, whose actions have the greatest significance for troubleshooting brownfield, it is possible to stimulate through urban planning, as well as through various fiscal measures and new land policy. Horizontal coordination in addressing brownfields includes activities and cooperation with partners in the construction and development of the municipality (Stojkov, 2007). Public and private sector, and civil initiatives are an important factor in solving the problem of a brownfield.

To execute a systematic action of the regeneration of brownfield sites, it is necessary to ascertain their current state. State institutions have the task to provide funds, to set methodology of creating a unified inventory of brownfield sites, and the cities and municipalities will do their job. As stated in the publication *Reactivation of Brownfield Sites in Serbia (Reaktiviranje braunfilda u Srbiji)* (Stalna

konferencija gradova i opština, 2011), so far state institution missed two chances to do an inventory of brownfield sites. Firstly, as part of the privatization of the companies, where it is presumed that the recording of brownfield sites in the process of privatization would not be overly complex, and even financially demanding project. Another possibility was a project of developing a Unified inventory of real estate, which was financed by the World Bank (World Bank Group) (Stalna konferencija gradova i opština, 2011). As exemplars of good practice, certain cities and municipalities can be separated, which prepared the catalogue of brownfield sites available for web browsing (Indija, Sombor, Kuršumlja, Ruma, etc.). In developing brownfield database also worked Serbia Investment and Export Promotion Agency (SIEPA), and USAID's Municipal Economic Growth Activity (USAID Serbia 2005). However, as the authors of publication *Reactivation of Brownfield Sites in Serbia (Reaktiviranje braunfilda u Srbiji)* stated, the most complete inventory of brownfields was made by the Army of Serbia and the Ministry of Defence (Stalna konferencija gradova i opština, 2011). Abandoned buildings that belonged to the armed services make up a significant percentage of the total number of brownfield sites in the territory of Serbia, and as such represent a resource that is extremely important both in economic and in spatial terms.

From the ecological aspect, it is important to notice that, unfortunately, urban land is not considered as a part of non-renewable natural resources, among which are included water, green spaces and minerals. Brownfield sites have subtle effects on the environment (infrastructure hindering the efficiency of urban form), and they also affect several other media (soil, water, air) (Ferber and Nathanail, 2006). The regeneration of brownfield sites is reusing existing city infrastructure, thereby contributing to the reduced expansion of cities, urban sustainability and preservation of quality of life in urban space. The revitalization of degraded urban areas positively affects the environment, allowing the return of the population to the cities (Vanheusden, 2007). Reusing brownfield sites is one of the most important activities if we want to achieve sustainable urban environment, by restricting of greenfield investments. The revitalization of brownfield sites provides a unique opportunity for the implementation of various sustainable strategies. If we focus our building activities on brownfield sites, we can maintain low carbon approach, which is one of the main goals of sustainable cities of future.

Regeneration of brownfield sites is not an easy and short-time task, it is a complex procedure, which involves a number of parties with different interests, and it usually takes several years. In the process of identification and analysis of brownfields in the municipality, it is advisable to include entrepreneurs, which will therefore be presented development opportunities for previously urbanized areas. Involving them from the very outset of the process will create the conditions for entrepreneurs that will mean less risky investing in brownfield regeneration. Although the regeneration process is time-consuming and laborious, the results obtained are more than worth the effort. Besides the wellbeing of

regeneration on the site, there is a significant impact on urban regeneration and other segments of the space. Brownfield regeneration raises the quality of life in the city, confirms the principles of sustainable development, preserve the history, structure and spatial resources and establish the basis of heritage revitalization and preservation of the identity in cities.

The strategy of regeneration of brownfield sites must be part of the development policy of the country, and it is essential that it is being connected to urban planning and development strategy in the jurisdiction of local municipalities. The national policy is focused on the identification of brownfields and the need for outside intervention, but any site reuse strategy must include a local component, so that it could examine the broader impacts of reclamation on the environment. Local authorities play a key role in the management of brownfield regeneration as an integrated component of the management of spatial development at higher levels. Planning documents are very important, but not only instruments of active regeneration of brownfields (Ferber and Nathanail, 2006). There is a strong need for overarching approach that integrates ecological, economic and social dimensions to regenerate abandoned urban sites to the functional structures. Municipalities can play an important role in boosting the regeneration of brownfields by providing a political framework for integration of sectoral policies (financial incentives, environmental taxes and charges, restrictions, instructions, orders, etc.).

#### LIMITATIONS OF BROWNFIELD REGENERATION IN SERBIA

In the process of regeneration of brownfields participate a large number of stakeholders, and their mutual co-ordination is very complicated task because it is difficult to define and understand the interests of each. In the case of countries that had a socio-political system similar to Serbian, following the settlement of property rights over land, the biggest problem for regeneration are matters of interest harmonization and coordination of stakeholders in the process (Perić and Maruna, 2012). To solve these problems, the key concept is communication, understanding and trust among the participants in the process. Environmental protection is imposed as the main reason for brownfield regeneration in developed countries, while in the post-socialist societies, economic gain basically initiates regeneration. Understanding the complexity of the recovery process and understanding of interests and power relations among stakeholders is a prerequisite for successful regeneration of construction land in Serbia.

A major problem in the field of regeneration of brownfield sites include the master plans of municipalities, which constantly provide new areas for designing buildings on the outskirts of the cities. Therefore, the situation in existing brownfields is deteriorating and the creation of new ones is encouraged. In addition, it violates the urban structure of the city and prevents the process of urban

regeneration. The problem of local master plans can be resolved only by incentives and policies that come from the national level. A serious obstacle to the regeneration of brownfield is easy access to greenfield sites. In fact, by providing connectivity infrastructure and by ignoring the abandoned land, administrative authorities at all levels are subsidizing the development of greenfield investments, thereby undermining the re-use of brownfield and thus support the expansion of cities in the direction of the highway.

The final and most important barrier for brownfield re-use is a lack of technical resources and professional knowledge. In addition, there is a need for the support of public-private partnership whose obstacles are not financial, but rather a part of inadequate legal and regulatory framework that prevents the proper channeling of existing resources. It is impossible to expect that all barriers to re-use brownfield can be reduced or abolished. A key issue in order to remove barriers to the reuse of brownfield sites is the need for brownfield leadership at the national, regional and local level.

## CONCLUSION

Activities for the regeneration of brownfield sites in Serbia require a careful and concretised approach based on strong political will from the regional to the local level. There are a number of incentives for foreign and domestic investments that apply to brownfield sites. However, the share of brownfield investments in total investments is very low, mostly due to unresolved property issues and the high cost of land development (PALGO Centar, 2008).

The problem of brownfields has reached enormous proportions in the last ten years due to the effects of transition, and in that period it was marginalized by the government. Brownfields are a specific opportunity, but also a threat to our society, which no one has addressed because of the lack of a national strategy and undefined responsibilities for land recycling. At the level of municipalities and cities, brownfields have only recently become the subject of action plans and urban planning documents, but the implementation of such projects slows down due to financial and personnel constraints.

As a positive side of the brownfield problem in Serbia, it can be placed a fact that the necessity of participating in the resolution of this issue is acknowledged at all government levels. The term brownfield is slowly becoming known and used term in all means of communication and media, which will soon result in increased awareness on a sustainable reconstruction of our cities. Good examples in Europe and in our country should teach us how to be successful in the regeneration of brownfield sites and to indicate new opportunities for the community that appear after the final stage of a complex process of recycling of abandoned land.

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