

MAPPING BROWNFIELDS AS AN URBAN PLANNING ACTION

Moscovici¹⁾ Anca-Maria, Raluca Văduva²⁾, T. Sălăgean^{3)*}, Mariana Călin⁴⁾, V. Păunescu⁴⁾

¹⁾Faculty of Civil Engineering, Politehnica University of Timișoara, 2A-Traian Lalescu Street, Timișoara, Romania

²⁾Water & Environmental Efficiency Association, Timișoara, Romania

³⁾Faculty of Horticulture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5 Mănăștur Street, Cluj-Napoca, Romania; Corresponding author:

tudor.salagean@usamvcluj.ro

⁴⁾Faculty of Land Reclamation and Environmental Engineering, University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Abstract. Brownfield sites have an important potential for a sustainable urban redevelopment, but in the same time they represent a challenge for the stakeholders. Finding solutions for brownfield redevelopment may be difficult for the authorities and owners alike. In this paper we classified the type of the Brownfield sites and we want to emphasize the importance of using these lands.

Keywords: brownfield, urban planning, sustainability redevelopment

INTRODUCTION

Cities are continuously changing due to society's needs. While many cities are facing economic problems caused by the decline of industry, it is obvious that a smart redevelopment could be very important for a sustainable growth (Ferber, 2016). Because of an increasingly demand for land for housing or industry, authorities have to tackle the issue of irrational land use by not allowing an irresponsible urban sprawl. Since many brownfield sites may be a problem in terms of pollution and people's safety, cities may benefit from the redevelopment of these sites. Indeed, there are various barriers to overcome in the process of brownfield redevelopment, but it is not impossible. There are many successful examples in this sense: Bristol (UK), Berlin (DE), and Toronto (CAN). Etc.

According to the European expert network CABERNET (Concerted Action on Brownfield and Economic Regeneration Network), brownfields refer to sites that "have been affected by the former uses of the sites and surrounding lands; are derelict and underused; are mainly in developed urban areas; require intervention to bring them back to beneficial use; and may have real or perceived contamination problems" (Ramseden, 2010)

Brownfield sites have an important potential for a sustainable urban redevelopment, but in the same time they represent a challenge for the stakeholders. Finding solutions for brownfield redevelopment may be difficult for the authorities and owners alike.

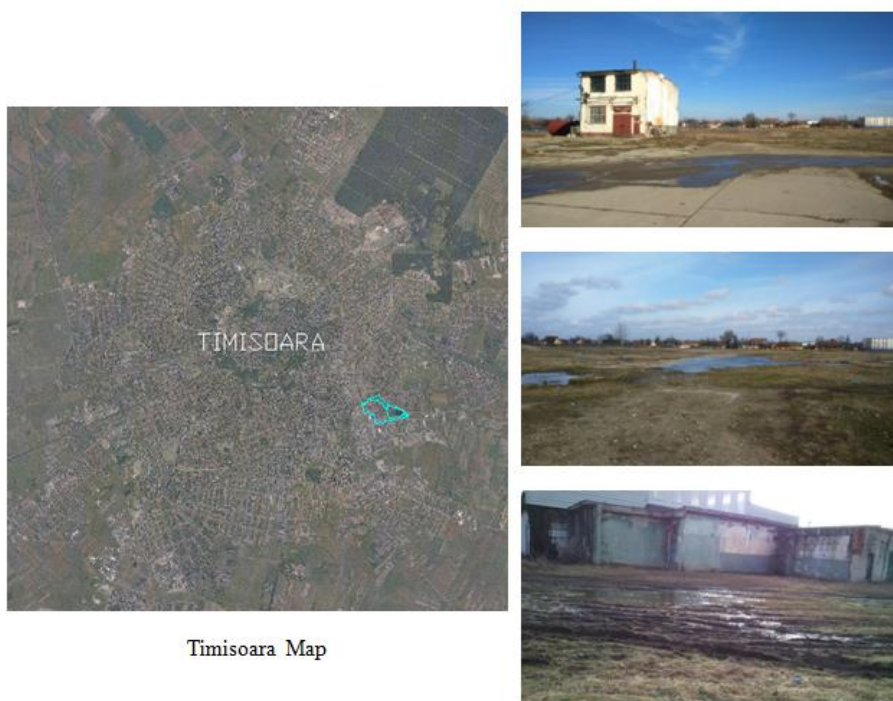
RESULTS AND DISCUSSIONS

Brownfield redevelopment is gaining ground in Europe, reducing the negative impacts on the environment. Timisoara is one of the biggest cities of Romania, where the

increasingly demand for land for housing and industry encourage the urban sprawl. In the same time, there are many underused or abandoned industrial sites that should be re-used, as a solution for a sustainable development. In this sense, the authorities should encourage the use of brownfield sites rather than the agricultural areas near the city (greenfields). Although decontamination can be complex and costly because it requires soil, surface and groundwater remediation, the redevelopment of brownfields can be a sustainable opportunity for the city regeneration.

The brownfield regeneration involves considerable time and money, which are usually unavailable. The landowners are not motivated enough to invest money for the redevelopment of a brownfield site (Sinnett, 2015). Therefore, active policies and tax incentives are required to encourage the remediation of contaminated sites or to use enforcement action when is necessary.

There are various possible solutions for the brownfield redevelopment. To achieve the most adequate solution, the cooperation of landowners, authorities and citizens in the urban decision making process is very important (Brebbia,2006). To facilitate communication between stakeholders, there should be a single institution/agency to manage the entire process of brownfield redevelopment. This institution should collect, manage and provide information on sites suitable for investment. In addition, it could offer assistance with financing or marketing. However, a new agency/institution would complicate the administrative system, so an appropriate solution would be the founding of a new department of the urban planning office to take over all the duties listed above. Knowing what to do, where, when and how, the stakeholders have the power to create a better city.



Timisoara Map

Pictures with the brownfield sites

Fig. 1. Example of buffer (brownfield) sites

We consider that two types of brownfield sites can be distinguished within a city: the buffer (brownfield) sites and the inland (brownfield) sites. The buffer (brownfield) site is situated between the industrial areas and residential areas.

Precisely because of the positioning issue, it is recommended that after decontamination, this site should be used as a green protection area. The role of this new green site would be to protect the residents from air and noise pollution.

The case studies presented in figure.1 present proper examples of buffer (brownfield) sites from Timisoara. We mapped those sites using orthophotos and consulting cadastral information.

The inland (brownfield) sites consist in industrial areas that because of urban development, specifically through continuous urban sprawl, end up to be surrounded by residential areas. Fabric area is a good example of an inland (brownfield) site (Figure 2). For the redevelopment of this type of brownfield site, it should be taken into account the previous industry type, the type of pollution and the time necessary for remediation. The inland (brownfield) sites are attractive for residential use, business or shopping centres and museum or educational use.



Fig. 2. Example of inland (brownfield) sites

After defining the study area, the next step would be collecting data on landowners, land use, access to utilities and transport network etc and organising it into a geodatabase that should be necessary into the decision making process.

CONCLUSIONS

We map the existent brownfields, so that effective measures could be taken in the specific areas. Mapping will help the beneficiaries to identify and to visualise the affected areas and also to provide information regarding the landowner. The maps are correlated with field observations, to validate the results.

The brownfield regeneration involves considerable time and money, which are usually unavailable. The landowners are not motivated enough to invest money for the redevelopment of a brownfield site. (Abdullahi, 2015)

In the context of sustainability and urban redevelopment, we can imagine an infinite number of possible solutions for the development of the city. There is a clearly need for better understanding of the factors underlying the occurrence of brownfield sites in order to ensure a more sustainable city.

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