

Challenges of sustainable redevelopment of brownfield sites in the metropolitan area of timisoara

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Abstract

Brownfield redevelopment is gaining ground in Europe, and more and more Member States are searching for sustainable measures to deal with those sites in order to reduce their negative impact.

Brownfields in Romania are mainly connected with the decline of industry from the communist era. Timisoara is one of the biggest cities in Romania, where the increasingly demand for land for housing and industrial use encourage the urban sprawl. In this paper, we approach the problem of brownfield sites and we are trying to highlight the importance of interdisciplinary team of experts in making cities more resilient to local challenges. Initial site assessment is mandatory for further redevelopment of a brownfield site, and the surveyors have an important role. Many issues have to be taken into account, such as the site location, ownership, costs (as purchase of land, costs with demolition of existing facilities or soil decontamination) or risk and vulnerabilities. But the advantages of brownfields redevelopment are considerable and can represent gains on many fronts: on the environmental, social and economic development side.

Keywords

brownfield sites, sustainable redevelopment, mapping, environmental conflicts, land administration.

1. Introduction

Brownfield redevelopment is a topic of increasing importance for sustainable urban development in Europe [1]. It is predicted that by 2020 approximately 80 per cent of Europeans will be living in urban areas, which means that more land in and around urban areas will need to be developed for housing and other purposes [2].

Interest in brownfield redevelopment has increased especially in countries and cities that experienced the decline of industrial, agricultural, military or other activities. So, the Member States have to identify sustainable measures to deal with those sites in order to reduce their negative impact, highlighting the need for a more complex analysis of the characteristics of brownfield sites, the causes of occurrence and also their impact. The current enthusiasm on brownfields redevelopment is a consequences of the fact that the cities are evolving and brownfields are considered a valuable resource for the further development of cities.

Many aspects can be the causes of the appearance of brownfield sites, as for example deindustrialization, bad management of companies, increasing/decreasing land value, speculative real estate investment, different/opposing perceptions of the stakeholders about the environment and allocation of resources etc. An appropriate understanding of those causes is essential to formulate effective strategic planning. A range of sectoral agencies are also involved and have to approve plans that fall within the scope of their remit. For example, any construction within 50 metres of a main road or 30 metres of a minor road is an issue that has to be handled by the Road Administration [3]. Accessibility to main roads and public transportation facilities is another important characteristic of site suitability. Having proper accessibility is a positive factor for most of new developments [4].

Understanding urban systems in terms of their environmental, social, economic and governance performance is an essential part of sustainable urban land administration.

Timisoara has a traditional spatial structure, based on a radial development model, reinforced by a series of concentric rings and has extensive areas of land that have the potential for significant regeneration and development projects. The most common are large industrial areas, now completely or partially abandoned or underused, located near the center of the city[5].

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2. Problem

In order to have a sustainable city, there is a need for continuous improvement of development plans, policies and strategies. If different stakeholders consider the brownfield sites a problem, another category of stakeholders see the brownfields as an opportunity for gaining money. Brownfields should not only be seen as a source of conflict, they should be approached from the point of view of progress and sustainable development.

The city cannot meet the needs of all stakeholders but has to find an appropriate long-term sustainable development strategy. Where decision-makers do not have the capacity to make decisions regarding the brownfield redevelopment, conflicts may appear. But using the necessary knowledge and examples of good practice, and involving interdisciplinary teams of specialists, the brownfields can turn into effective solutions for the sustainable development of the city. An interdisciplinary approach encourages everyone to participate in making cities more sustainable by gathering knowledge from each other. The community involvement is also important and the citizens should be encouraged to get involved in the decision-making process. Experts like urban planners, surveyors, architects, economists etc. are just a small part of the team that have to work together to find appropriate solutions for the redevelopment of brownfields. As for example, the surveyor is responsible for the identification of brownfield sites, the architect is responsible for designing projects of redevelopment of brownfields, the economist is responsible for financial aspects etc.

Regarding the identification of brownfields, mapping will help the stakeholders to identify and to visualise the affected areas and also to provide useful information if are correlated with a detailed database that includes the location of the brownfield site, ownership, legal status (Fig 1.), size (Fig.2), previous development (Fig.3), if the site is contaminated or not and type of contamination. [6]



Fig. 2 Topographic measurements



Fig. 3 Project designed by an architect in the metropolitan area

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Fig. 1 Land Registry of a brownfield

3. Resolving the Problem

Interdisciplinary teams have to make decisions that consist of economic, social and environmental aspects where the surveyors have an important role in the identification of brownfields.

We have identified different brownfield sites, but also brownfield redevelopment success stories. These examples are not intended to be a full inventory of all brownfield sites in Timisoara. It is easy to create a database that contains size, ownership, information on previous development, data on neighbourhood, but it is difficult to find out if the site is contaminated or not. We can assume that the site is contaminated or not depending on the previous use, but detailed soil and groundwater analysis are necessary. A challenge in creating a database for each redeveloped brownfield is to find out the steps ahead of the implementation of the project, the implementation phases, the challenges faced by the parties involved and the community needs as well.

a) Developed projects:

- Shopping malls - developed on the site on which the antennas of the National Radio Communications Society - Direction of Radio Television Timisoara were placed (this projects also attracted investors to develop offices buildings as well) and on the site of the former Rubber and Plastics Enterprise "Dermatina", Timisoara
- Offices and apartments complex - developed on the site of the former Canning factory Fructus

b) Ongoing projects:

- Offices and apartments complex –(ISHO) developed on the site of the former ILSA (Wool Industry SA) (Fig. 4)



Fig.4 Implementation of the project ISHO on the former ILSA

c) Brownfield sites

- the former Abattoir - this site had a redevelopment project, but the works stopped and the sites is in preservation / degradation (fig. 6)

- former Guban leather factory (fig. 6)
- former Polygraphic Enterprise Banatul
- former Solventul Petrochemical Plant in Timisoara

The problem of industrial heritage is one of the disadvantages of trying to reuse brownfields areas. The legal framework is to protect the valuable elements of this historic environment, industrial halls, facilities, administrative buildings that were representative elements of the built cultural heritage . We agree with their importance, but at the same time we consider that the space to be protected and considered a historical monument is too large and perhaps only something representative should be preserved, and the rest of the land should be reintroduced into the civil circuit.

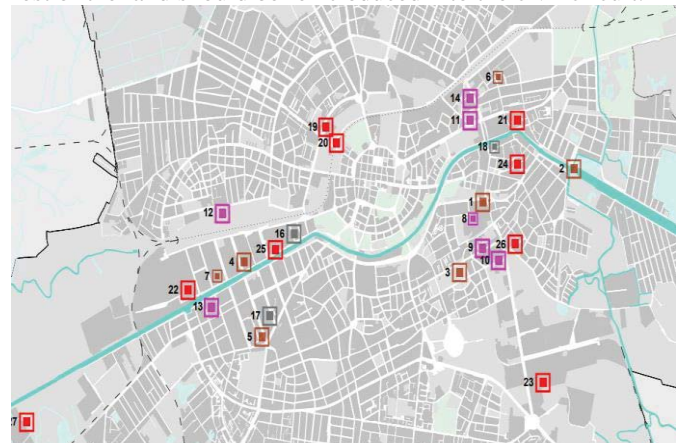


Fig .5 Maps with the industrial heritage [8]



Fig.6 Example of the industrial heritage

In the figure 5 the industrial areas that have been declared historically valuable industrial sites [8] are presented, some of them being subject to the historical monuments law of 2010 and others introduced by the PUG in 2012. For example, the former City Abattoir and the Guban leather factory are large areas situated close to the city center, have an approximate area of 5 ha and 3 hav(Fig.6), and which, through appropriate land management projects, could be both reintroduced into the civil circuit and important historically elements could be preserved.

4. Conclusions

We consider that it is necessary to realize that land is a finite resource and it should be used in a sustainable way. A priority is to protect the unblended habitats, the good land for agriculture, and for this we must ensure that the land is used in the most efficient way.

The city can benefit from the redevelopment of brownfield sites through well designed projects and interdisciplinary expert teams. There are also multiple challenges that have to be solved, and that is why all the stakeholders have to be involved.

There is no institutional structure for brownfield regeneration in Romania, but it is absolutely necessary to be established.

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