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THE APPEARANCE OF BROWNFIELD AND GREENFIELD DEVELOPMENTS IN THE INTEGRATED URBAN DEVEVELOPMENT STRATEGIES OF THE NORTHERN HUNGARY (HUNGARY)

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Abstract: In the spirit of environmentally friendly urban development, which has gained importance in recent years, increasing attention has been devoted to the status of brownfields, i.e. areas within the internal parts of settlements that had lost their previous functions. This problem appears with particularly acuteness in Hungary's Észak-Magyarország (Northern Hungary) region, which was one of the most important zones of heavy industry in the country in the period between 1945 and 1990, and as a result, it had numerous and extensive brownfield areas after the political transformation. With a view to the above, the purpose of this study is the analysis of the Integrated Urban Development Strategies prepared by the cities in the region, the presentation of the concepts formulated in these documents in connection with the brownfield areas, and the exploration of the differences between the potential opportunities of use.

Key words: brownfield developments, Northern Hungary, Integrated Urban Development Strategies

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INTRODUCTION

In the spirit of environmentally friendly urban development, which has gained importance in recent years, increasing attention has been devoted to the brownfields, i.e. areas within the internal parts of settlements that had lost their previous functions. There are fundamentally two facts underlying this phenomenon. On the one hand, the use of such areas may often make the

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development of other areas used with low intensity (e.g. agricultural areas/green areas) superfluous, and on the other hand, with their careful use, the "landscape wounds" deteriorating the appearance of the settlements may also be eliminated (Boca, 2018).

This problem appears with particularly acuteness in Northern Hungary (NUTS-2 region) included three counties (figure 1), which was one of the most important zones of heavy industry in the country in the period between 1945 and 1990, and as a result, it had numerous and extensive brownfield areas after the political transformation. In order to resolve the situation of the settlement parts concerned, suitable development concepts had to be elaborated, which in the programming period between 2007 and 2013 meant the Integrated Urban Development Strategies.

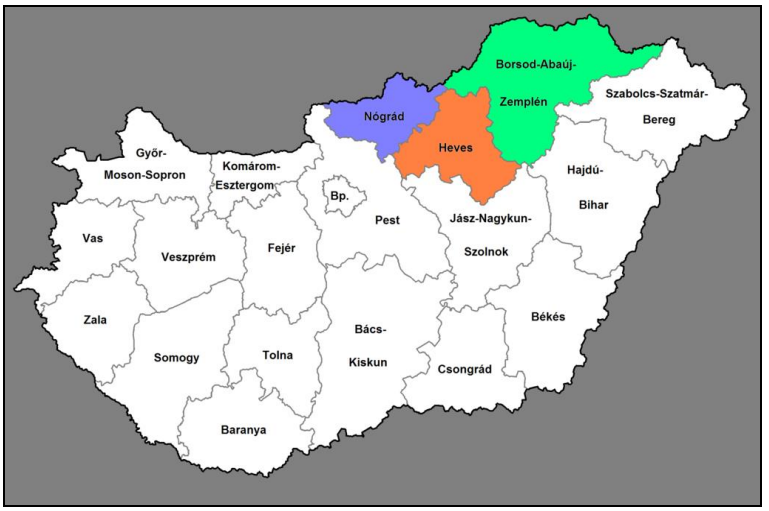

Figure 1. Location of Northern Hungary and its counties
(Source: en.wikipedia.org)

With a view to the above, the purpose of this study is the analysis of the abovementioned documents prepared by the cities in the region, the presentation of the concepts formulated in these documents in connection with the brownfield areas, and the exploration of the differences between the potential opportunities of use. At the same time, in order to be able to determine the specificities of brownfield areas, we also considered "greenfield areas" as a control group.

THEORETICAL REVIEW

Scientific interest in brownfield areas can be observed from the mid-1980s, which can be fundamentally attributed to two facts. On the one hand, as a result of the global economic crisis, a large number of companies went bankrupt and discontinued their activities, and therefore abandoned their former premises (Loures and Panagopoulos, 2010; Filip and Cocean, 2012). On the other hand, as a result of the process of disarmament starting in the early 1980s, followed by the reduction of the size of military forces in the early 1990s both in Western European and in former socialist countries, many military barracks also became vacant (Bagaeen and Clark, 2016; Herman et al., 2016; Ponzini and Vani, 2014).

In the light of the above, several definitions of brownfield areas have emerged. The definition originating in the United States only included in the scope of this concept areas subject to environmental pollution (e.g. Kádár, 2011; Orosz, 2012), while researchers in Europe applied a much broader approach.

Pursuant to the definition used by the expert network of CABERNET (Concerted Action on Brownfield and Economic Regeneration Network), brownfields are sites which were used earlier, but are derelict or underused now, may be affected by contamination, are mainly located within developed urban areas, and require intervention to bring them back to beneficial use (Cabernet, 2006).

According to the definition formulated by the Conference of Ministers responsible for Spatial/Regional Planning (CEMAT), "[b]rownfield land is previously used for industrial (or certain commercial) purposes, which may be contaminated by low concentrations of hazardous waste or pollution but has the potential to be re-used once it is cleaned up. Sometimes the term 'brownfield land' is also used to designate areas that were previously developed and have become obsolete but are not necessarily contaminated. Generally, brownfield sites exist in a town's industrial section, on land with abandoned factories or commercial buildings, or other previously polluting operations. Small brownfield sites may also be found in many older residential districts, where (for example) dry-cleaning establishment or petrol stations once existed. Many contaminated brownfield sites were unused for decades, but emphasis has recently been put on decontaminating and rehabilitating them because demand for development land is continually growing" (CEMAT, 2007).

The definitions used in Hungary, at the same time, point beyond the above approaches. According to the definition formulated by VÁTI Kht. in the early years of the century, "brownfield (rust belt) areas are former areas of industrial or other economic use that have become unused or underused and are generally in a deteriorated physical condition and affected by environmental pollution, as well as abandoned, no longer used military barracks" (Nagy and Teőke, 2003, p. 3). In the course of the studies conducted in Budapest, the research group of the Budapest Department of the Centre for Regional Studies of the Hungarian Academic of Sciences (MTA) applied the following definition: brownfields are "former industrial areas which are used with smaller efficiency (underused) or occasionally abandoned, but we can also include here underused or abandoned railway yards and vacated military facilities as well" (Barta, 2002).

Even though in recent years there have been no extensive surveys in Hungary concerning the size of brownfield areas, the studies conducted so far have indicated that approximately 40% of such areas are located in the capital city, where they occupy approximately 13 to 15% of the urban areas (Nagy and Teőke, 2003). In the light of the above, it is not surprising that a significant part of the research so far has also dealt with Budapest (e.g. Barta, 2004; Győri, 2006; Kukely et al., 2006; Lepel, 2006), and there have hardly been any studies examining other urban areas (e.g. Papp et al., 2006; Kádár and Kozma, 2011, Dannert and Pirisi, 2017).

The emphasis on the need for integrated urban development can be considered a very important element of the Leipzig Charter on Sustainable European Cities (Schwarz, 2010; Csete and Horváth, 2012), in the light of which – in order to enforce the principle of concentration – the problems and interests that are important from the point of view of urban development must be considered simultaneously and equitably (Bujdosó et al., 2016). It was the

achievement of the above objective that the "Integrated Urban Development Strategies" (IUDS) prepared by the cities served, which, on the one hand, outlined a medium-term vision of the given settlement, and on the other hand, also formulated strategic objectives for the settlement as a whole, as well as for individual neighbourhoods within them.

According to the relevant requirements, an IUDS consists of the following main components: the breakdown of the long-term ("conceptual") urban development objectives into programmes and projects that can be realistically implemented in the medium term; the consistent application of a planning methodology that has a territorial basis and approach; the realistic estimation of the resources that can be used for the purposes of the development; the diversification of the structure of resources as far as possible; the allocation of government resources that are focused to the problem and extend the opportunities inherent in private developments as far as possible; the setting of transparent and accepted objectives, built on an accurate analysis of the problems and opportunities, and the assignment of clear and transparent urban development and municipal management activities to these objectives; the adoption of a strategy established with the real and wide-scale involvement of the society and economic stakeholders ('partnership'), as well as strategic monitoring carried out with the involvement of the partnership".

MATERIAL AND METHOD

In the course of the writing of this study, we reviewed the Integrated Urban Development Strategies adopted in the second half of the first decade of the 2000s in the cities of the Northern Hungary. In this period, settlements only had to prepare the above document if they wanted to receive funding from the grants available under the Regional Operational Programmes. In the spirit of the above, out of the 36 towns and cities of the region (as of 2008), 28 had such development concepts (figure 2).

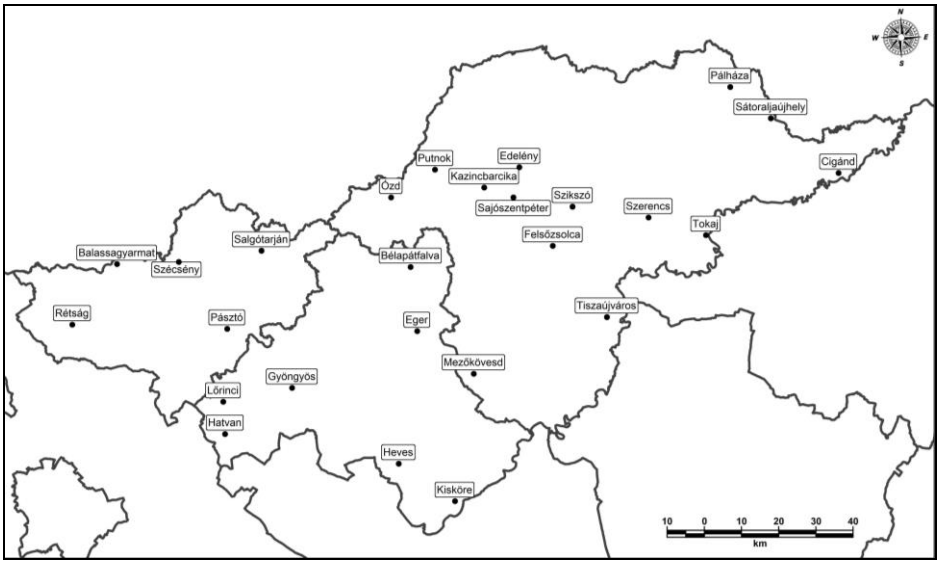

Figure 2. Location of 28 towns examined
(Source: own work)

In the course of our research, we used content analysis, a method of increasing importance in social geography: we examined in what contexts the phrases “brownfield” and “greenfield” areas appeared in the texts, and what ideas were formulated in connection with these types of areas.

RESULTS

Several important conclusions can be drawn on the basis of the examination of the appearance of the phrase “brownfield” in the documents concerned. On the one hand, the size of the settlement proved to be an important influencing factor (table 1): the bigger the population of the settlement was, the more types of utilisation were mentioned, and the intensity of these utilisation opportunities was also stronger. In the background of the above we can find the fact that in the period before the political transformation, larger settlements – as the primary sites of industrialisation – had very significant industrial areas, the decisive majority of which lost their original functions after 1990.

Table 1. The opportunities for the utilisation of brownfield areas as a subject of the size of the settlement
(Data source: Integrated Urban Development Strategies)

	the number of types various types of utilisation opportunities are mentioned/settlement	the intensity of the various types of utilisation opportunities mentioned/settlement
more than 20,000 inhabitants	3,43	4,14
10,000 – 20,000 inhabitants	3,00	3,86
less than 10,000 inhabitants	1,43	2,00

Table 2. The concepts formulated in connection with the utilisation of the brownfield areas
(Data source: Integrated Urban Development Strategies)

	the number of types various types of utilisation opportunities are mentioned (number per settlement)	the intensity of the various types of utilisation opportunities mentioned (frequency of mentioning)
recreation	15	25
economy/industry	14	18
recultivation/rehabilition	12	15
green areas	10	10
public services	6	6
residential function	3	4
transport	2	2

With respect to the concepts related to brownfield areas (table 2), the role of two functions could be underlined: those of leisure-related and economic-industrial functions. The fact behind the first of these is that, in an effort to break with the past, the settlements concerned formulated the aim of functional change in case of former industrial areas as well, and in the framework of the above, one of the most logical ideas appeared to be leisure-related utilisation, designed to satisfy the needs of the local population and tourists visiting the

settlement. Some examples for such developments in this group that were actually realised include the Festival Cauldron established in the area of the former stone quarry in Tokaj (figure 3), the National Film History Theme Park in Ózd (figure 4), and the Science Museum and Art Centre in Miskolc (the latter facility was completed, but was not eventually opened yet).

Figure 3. The Festival Cauldron established in the area of the former stone quarry in Tokaj
(Source: own photo)

Figure 4. The National Film History Theme Park established on the area of the former Metallurgical Works of Ózd
(Source: own photo)

The position of the economic/industrial function, occupying the second position, can be attributed to the fact that in case of the areas concerned – primarily due to the availability of the infrastructure – such ideas of utilisation evidently emerged as a result of the discontinuation of the earlier activities. Rehabilitation/recultivation, occupying the third position, cannot be considered as a definite function, when mentioning it, the settlements mainly intended to refer to the general renewal of the given area.

Utilisation as a green area can also be considered as an important concept, the purpose of which was – in addition to the reparation of the earlier landscape wounds – the improvement of the environmental conditions of such settlements, which generally had unfavourable conditions (e.g. the green area created in place of the former Kavicsos Lake of deteriorated condition in Mezőkövesd – figure 5).

The analysis of the potential utilisation of the greenfield areas (table 3) clearly shows that there are many more investment plans formulated in comparison with those based on brownfield areas. This fact is rather surprising in the light of the fact that the strategies of almost all settlements mention the need to utilise the brownfield areas, and some of the documents even state that they should be given a priority over greenfield investments. In the background of this contradiction we can probably find the fact that a new settlement part that was not used earlier is more attractive to investors than a brownfield area, and this fact is also reflected in the detailed settlement development concepts.

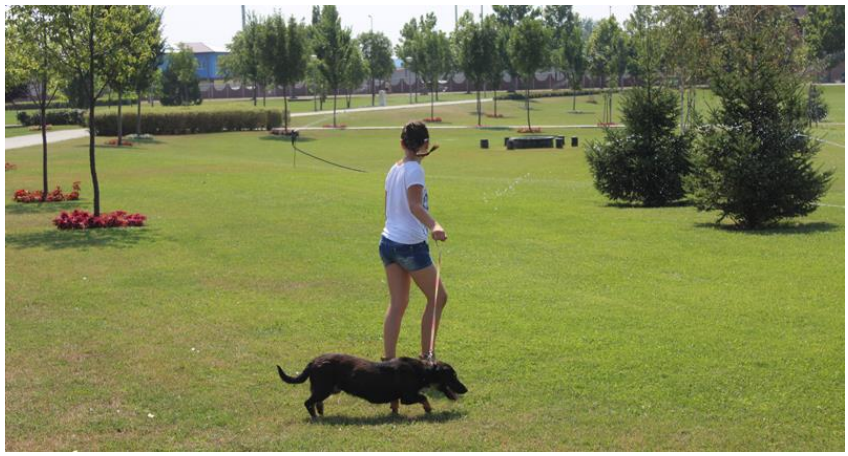

Figure 5. Green area in the place of the former Kavicsos Lake in Mezőkövesd
(Source: own photo)

Table 3. The concepts formulated in connection with the utilisation of the greenfield areas
(Data source: Integrated Urban Development Strategies)

	the number of types various types of utilisation opportunities are mentioned (number per settlement)	the intensity of the various types of utilisation opportunities mentioned (frequency of mentioning)
economy/industry	24	37
recreation	18	29
residential function	13	15
public services	10	10
green areas	6	6

On the basis of the analysis of the nature of the industrial investments and comparing brownfield and greenfield investments from this point of view (table 4), we can draw several important conclusions.

One of the shared elements of brownfield and greenfield industrial investments that most of the settlements emphasised was that they primarily expected small and medium-sized enterprises, whose investments and long-term operations in the settlements would be mainly encouraged by the provision of tax allowances. The plans drawn up in the documents for helping enterprises also included the establishment of business incubators in Ózd, Mezőkövesd, Pálháza (brownfield), as well as in Putnok, Felsőzsolca and Cigánd (greenfield). The expectation for investors to operate in an environmentally friendly way was formulated with respect to both types of areas (Szerencs, Lőrinci, Salgótarján, Bélapátfalva – brownfield; Ózd, Edelény, Cigánd, Bélapátfalva – greenfield). It is worth mentioning here also that the settlements did not place much emphasis on encouraging investments to be of research and development type.

The majority of the developments, which affected almost all of the settlements (with the exception of Szerencs, Tokaj and Rétság) were related to industrial parks and areas, as well as economic areas and zones. The difference is also manifested most in this area, since the dominant types of investment in case of brownfields were logistic centres and economic areas (21.4% as opposed to 28.6% in case of greenfields), while the proportion of industrial areas, park development, extension and utilisation in case of greenfield areas is 60.7%. This also clearly shows that there is a bigger demand for greenfield areas, and as a result, the settlements are also striving to satisfy these needs, since the most important consideration for them is job creation. There are a few unique greenfield plans, such as the biomass plant and the port in Sátoraljaújhely, the harbour of Tiszaújváros, as well as the of Szikszó microregional "employment works".

Table 4. The types and weight of industrial investments in brownfield and greenfield areas (Data source: Integrated Urban Development Strategies)

	brownfield (%)	**greenfield (%)**
machine industry	3,6	-
light industry	3,6	-
small- and medium sized enterprise	25,0	39,3
business incubator	10,7	14,3
environmentally friendly industry	14,3	14,3
development/extension of industrial parks	10,7	60,7
development/extension of logistic centres and economic areas	21,4	28,6
establishment/development of commercial and service areas	-	7,1
reseach and development	10,7	3,6
employment works	-	3,6
biomass plant	-	3,6
handicraft industry	3,6	-
harbor	-	7,1
railway station	3,6	-

From among brownfield investments, the one proposed for Bélapátfalva could be considered as unique, which specifically mentioned that they are expecting companies in the fields of light industry, electronics assembly or operating in the background activities of tourism for the area of the old cement factory, and enterprises active in the fields of wood processing or machine industry for the area of the new cement factory. Yet another unique case is that of Putnok, where they intend to settle small and medium-sized enterprises in the fields of handicrafts to their brownfield area. The establishing of handicraft industries and processing plants based on local agricultural products was mentioned in the plans of several settlements, but the documents did not elaborate on whether these investments would be conceived as brownfield or greenfield developments. The main objectives formulated by the settlements in connection with all investments were that they should preferably provide jobs to a large number of people and that the investors should have long-term plans for their local operation.

CONCLUSION

By way of summary we can conclude that in most Integrated Urban Development Strategies, the development of greenfield areas, as well as the recultivation/rehabilitation of brownfield areas are among the top priorities. Brownfield areas, especially in towns and cities that used to have considerable industrial activities, are located in the central parts of the settlement, and therefore, in many cases, their situation needs to be addressed. Such areas often only constitute a part of the designated target areas of action, and are therefore not separate action areas in themselves, unlike greenfields, which were often indicated as separate industrial areas or Industrial Parks. It was primarily smaller or larger industrial investors using environmentally friendly technologies that were expected to settle in these rust belt areas, but there were also some settlements where the plans called for transforming these sites into places for leisure activities.

The municipal governments intended to carry out the rehabilitation or recultivation of the areas of deteriorated condition from grants and/or the involvement of private capital. In most cases there were also plans for the utilisation of brownfield sites outside the central parts of the settlement, mainly for industrial purposes, but in case of abandoned mining yards, quarry ponds, or military barracks, a change of function was also planned, primarily shifting in the direction of activities related to tourism or logistics. The planned utilisations in most cases also intended to serve the purpose of job creation, since one of the biggest problems of the region continues to be the lack of job opportunities.

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