



BROWNFIELDS RESEARCH IN SLOVAKIA

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ABSTRACT:

This article deals with information about brownfields in Slovakia with different types and their conditions. Revitalization of brownfields represent new opportunities for creating better environment in urban zone and solving this problem could be an impetus to new investment in industrial, agricultural or turistic industry.

KEYWORDS:

Brownfield, revitalization, environment, industry zones

1. INTRODUCTION

From the beginning of 80's, there has been a growing attention in European Union for support and development of cities and regions. Evidence of this support are numerous grants, projects and organizations which are interested in brownfields- old objects. Every year USA and the EU are financially supporting the revitalization of brownfields and all relating activities. Reusing of brownfields become an important political agenda of developed countries already in 70's. Reusing of brownfields is today very strong connected with sustainable development of cities, villages and regions. Reusing of brownfields give the power not only to effective development of town residential areas but it also prevent the use of valuable agricultural land for industrial activities.

2. BROWNFIELDS IN SLOVAKIA AND ITS CHARACTERISTICS

Brownfield is a real estate in urban zone which is not effectively used and it is abandoned or contaminated. In this case we can not use the real estate without revitalization process. Brownfield was created as relic of industry, agricultural, residential or other activity. The main reason of brownfield creation is the economic restructuralization of the state and regions. Another reason is the transfer of human resources from primary sphere (agricultural, forestry) to secondary (industry and civil engineering) sphere and today to the tertiary sphere (business, transfer, services, public administration) of civic life. Brownfield are linked with situation in traditional areas and other development of new areas with another demands, mainly development of clean technologies. The Recession and bankruptcy of some firms and organizations left behind abandoned, unsightiness and dangerous places. A typical source of brownfields worldwide is the mining, chemical, oil, iron, steel industry, docks, dumps. There are also some other types of brownfield not only industrial, for example: abandoned buildings of hotels or agricultural buildings and other.

In Slovakia, there are many brownfields that are ruinous because there are no financial fund and programs for the support of the revitalization process. Some of them are bringing along a big environmental risks. In order to renovate brownfields we need a detail information about precision measurement of environment contamination. There is also a big problem with the debt level. This had caused that investments into brownfields are

linked with a big risk. Potential investors do not exactly know how to review input costs and risk factors and they are also not sure of the economic return.

A big amount of contaminations and harmful pollutants is not hidden. In the following paragraph I would like to characterize some of the most harmful pollutants. The main contaminated objects are land, ground water, buildings. The main reason of contamination are equipment emergencies, fires, toxicity materials, and other. The most harmful pollutants in industrial buildings are asbestos, colours with plumbum, floor impregnation oil, coating impregnation, canalization, harmful pollutants from manufacturing and storage processes, tanks with chemical materials and other. The highest threat is that this type of contamination can further continue in contamination of water and ground water. Contamination of water is possible in a great scale in many industrial zones and objects. This can be multiplied, because landscape under building was aligned by wastes and harmful pollutants. Old locations and old plants were changed to dumps with various wastes. These dumps are sources of contaminated ground water. The most dangerous wastes are from chemical, metallurgical industry and other. Some of them can be atomic.

Sometimes we can meet with the presumption that small enterprises and units are less contaminated. But it is not always true. Small enterprises are using very old technologies and industry equipment that is causing a less careful handling of toxic materials. Last but not least a very old operation and plants are sources of substantial contamination because at that time there was no environmental protection. Only in the 70's started an environmental protection that created a contemporary situation.

The presence of contamination in abandoned locations is a huge risk. For example: surface contamination of land in depth 0,6m makes an enormous danger for citizens who are living near to contaminated location. Very often, harmful pollutants can be heavy metals and various chemical materials. Another danger for citizens is water and ground water contamination and inhalation of dangerous emissions.

Other type of contamination is civil constructions in which asbestos and oil substances are the most dangerous. The danger of contamination is verified by risk analysis with research results of contamination patterns. The first step is informative verification based on comparison of contamination concentration with toxic limits. Its overload is dangerous for citizens and environment. We need to eliminate this type of harmful pollutants. Some types of brownfields in Slovakia are:

- ✚ industry buildings
- ✚ abandoned military objects
- ✚ agricultural buildings and fields
- ✚ administrative buildings
- ✚ cultural and recreational centres
- ✚ habitable houses
- ✚ mining objects

Table 1. Level of dangerous contamination of environment (High and low)

High level of dangerous contamination of environment	Low level of dangerous contamination of environment
Industry brownfields	Commercial brownfields (shopping centres, administrative)
Military brownfields	Cultural brownfields (cultural houses, cinemas, summer cinemas)
Railway and traffic brownfields	Recreational brownfields (sport centres, stadiums, parks, free time objects)
Agricultural brownfields	Institutional uninfected (schools, offices)
Institutional brownfields (hospitals, prisons)	

3. HOW TO SOLVE THE PROBLEM OF BROWNFIELD IN SLOVAKIA

Brownfields are interesting form of secret restraints for Slovak economics. We need to focus on elimination old environmental burden and we need to focus on revitalization of industrial parks, brownfields. Strategy would be focus on:

- ✚ help regions to be more attractive for investors
- ✚ reuse of old industrial objects for new business activities
- ✚ gurantee ecological auditors
- ✚ elimination of old burdens in the framework of real project with the intention of next industrial using

Table 2. Brownfields

Previous focus of brownfields	Number of brownfields	%
Agricultural	125	25,3
Industry	174	35,2
Civic amenities	112	22,7
Military objects	11	2,2
Housing	21	4,3
Tourist traffic, recreation houses, hotels	29	5,9
Other	22	4,5
Total	494	100,0

Solving the brownfield problem needs a big public promotion (public need to know what brownfields exactly are.) The next step is to create a brownfields database. It is result of mapping all types of brownfields in Slovakia. This brownfield database will encompass information about brownfields, characteristics of brownfields, information about locations. Evidence of brownfields will have the goal:

- ✚ the acquirement of concrete information for analysis on regional and town level
- ✚ the preparation for investment activities into brownfields
- ✚ acquirement of benchmarking index for various types of situation
- ✚ focusing on good ideas and directions for support of revitalization and reusing of brownfields
- ✚ the embodiment of brownfield problems into regional planning documents
- ✚ the increas of use of build-up areas

4. CONCLUSION

Slovakia is undoubtedly one of the countries that could profit from the idea of reusing brownfields in connection to new ideas and solutions in various areas. However there is still a long way to go in order to convert old unused industrial areas, buildings, dumps etc into a modern, manufacturing, assembling, technological centres or recreational areas and administrative spaces.

It is widely recognized that a first step towards succesful resolution of the problem is a detail register and characteristic of brownfields. SARIO agency started a survey of brownfields in Slovakia upon which more detail analyses and materials for the national strategy should be created. Acquired information will be necessary for potential investors in their decision-making process in coherence with the localization of investment project but also for economical development of regions. After establishing the database, an environmental audit is expected to be carried out because the environmental burden of brownfield areas is diverse. In the following chart there is a list of previous focus of brownfield areas to be seen and also the information on the number and percentage of brownfiels in Slovakia.

I believe that answering the brownfield issue is of high importance for everyone and especially required in dealing with environmental burdens and reuse of old areas and areas for potential investors. Many brownfields are situated in attractive localities that offers good precondition for initiating a new regional development of the whole Slovakia.

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