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Specificity of Brownfield's Revitalisation in Polish Legal Framework: Discussion On Current Legislature Problems Based On Case Study

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Abstract. The issues addressed in the brownfields of the urban structure gained importance after 1989 and were connected with political and economic shifts in Eastern Europe and restructuring of the industry. As a consequence, the post-industrial areas emerged as a landmark on the maps of many cities in need of the revitalisation and reintegration with the urban structure. The lack of appropriate scope of urban policy in terms of post-industrial areas has repeatedly contributed to extension of the restructuring process of such areas in Poland. Revitalisation is the phenomenon, that responds to the above mentioned processes. The author defines revitalisation as a constant recycling process of the areas as well as introduction of new functions. This process allows economic, housing and societal dimensions' rehabilitation of degraded land and the acquisition of new investment areas – not infrequently within the downtowns. The first records relating to urban regeneration in Poland stem from the government's programme for the post-industrial areas. National programmes envisaged the realization of the sectorial policy by voivodships. As a result, only the Voivodeship of Silesia with considerable industrial heritage has undertaken the implementation of the conversion policy of post-industrial areas within the areas of Upper Silesian and Dabrowa Basin Metropolitan Area (Upper Silesian Industrial Region). The conducted research concerning the form and parameters of a model revitalisation process of post-industrial areas, has led to the author's study of the conversion scheme of post-industrial areas. It corresponds to discussed models of profitability of the conversion of brownfields ABC (Ferber, Grimski, Millar, Nathanail 2006), ABCD (Frans, Gules, Prey 2008), as well as the model of recycling's stages according to Glass-Geltman (2000). The presented model is based on the Polish experiences (Gasidło 2008, Huculak 2009, Lesser 2012, Klimek 2013) and also on in-depth case study of an area of the former Aluminum Works in Skawina, within Cracow's Metropolitan Area (Cracow's Industrial Region). The analysis of a case study was based on the examination procedure which included four research tools: the urban inventory, surveys concerning conditions of conducting business activity (40% feedback), the direct observation during small – scale workshops and other outdoor workshops during preparation of Municipal Revitalisation Programme and three in-depth interviews with the representatives of the City Council. The Aluminium Works' activity has led to significant pollution of the environment both in the city and in the whole region. The increased interest in the environmental issues in the 1970s led to the closure of the Aluminium Works in the next decade, opening the process of self-acting regeneration of this area. The regeneration process of the area has been active up to this day, however, it does not relate to the improvement of conditions of conducting economic activity, quality of the environment and spatial order. The representability of this case study is based on clear indication of the effects of the lack of legislation in the subject matter, which leads to the



blockade of the complex revitalisation process and functioning of such an area. Moreover, the lack of implementation of sectoral policy may result in disintegration of economic structure despite permanent vertical and horizontal agreements between entrepreneurs.

1. Introduction

Deindustrialization has been ongoing in Europe since 1970s and it has influenced the development of new investment areas in the urban structure. In Poland, this phenomenon was introduced with some delay, after 1989. It was accompanied by the restructuring of the industry connected with the transformation of the socio-economic system in the communist bloc countries [1,2,3]. Revitalisation is the phenomenon that corresponds to changes caused by industrial restructuring. The author is inclined to the definition which includes recycling of areas through revitalisation [4]. Revitalisation is understood as a continuous process of land recycling in urban tissue, comprising reintroduction of functions or seeking a new development path. This idea enhances the postulates of a densely built-up city, allows for economic, residential and social regeneration and the acquisition of new investment spaces.

The Polish experiences indicate a common legal genesis of Revitalisation and transformation of post-industrial areas. The aim of the research was to learn about the specificity of brownfield area revitalisation and to compare it with national circumstances. In order to do that, an in-depth analysis of the case study was carried out based on elaborated research methods: surveys, in-depth interviews, land inventory, participant observation. The representativity of the case study was connected with its circumstances. It was a large industrial plant that was closed for the environmental reasons. The restructuring process has been ongoing since the beginning of the 1990s, the social, economic and housing dimensions are the elements of revitalisation. Additionally, the plant is located in the voivodeship, which, as one of many more in Poland, has not introduced the sectoral policy for brownfields. The article presents the effects of the lack of a directional policy and the main problems of regeneration of the post-industrial area. The summary of the conducted research is the author's study of the conversion model of the degraded area.

2. Theoretical background

2.1. The specificity of brownfield areas

The first definition of the revitalisation process in Poland was included in the Government Programme for post-industrial areas [5] developed by the Ministry of the Environment. According to these provisions, the revitalisation meant “the process of rehabilitation and land redevelopment (including cleaning, reconstruction and modernization of the existing land cover), which will restore the state enabling this area to perform utility functions”. This definition comes close to the Czech and Romanian strategic declarations [1]. As it turns out from comparison, there are no clear definitions of post-industrial areas in legislation, among other things, in Germany, Poland and Romania [6]. For the purposes of the conducted research, the area adopted a wider definition of the post-industrial area, covering the areas that are places of production and that were degraded by it [3], and the areas connected with the production-related activity, listing landfill sites or administration buildings [7, 8]. The conceptualization of agenda of the brownfield area requires careful analysis and selection of the appropriate scenario. The experiences gained from the revitalisation of the German Ruhr area allowed us to develop a profitability model of the conversion of post-industrial areas. As part of the activity of “CABERNET Concerted Action on Brownfield and Economic Regeneration Network”, the question was raised about the necessity of interventionism of public authorities in conversions. The answer to this question is conditional on the attractiveness of the area and the tasks necessary to introduce a new form of use. The ABC model published in 2005 by the “CABERNET” network [9] comprised three types of land and the projects possible to implement in their areas [10]. Then, the class A areas were distinguished, where projects can be implemented independently by the private sector considering the high attractiveness of the region. Silesia City Center in Katowice and Bonarka City Center in Kraków are the examples of such implementations. Whereas, the class B areas required the involvement of

private and public sector in restructuring due to the boundary line of profitability of Revitalisation. This concept is based on the activities of development agencies, for example French “Établissement Public Foncier – EPF” [11,12], or regional agencies, for example the Agency for the Development of the Cracow Region joint stock company, which restructured Cracow Soda Plant “Solvay” [7]. The areas that are unattractive to the private sector are predestined for so-called “flagship projects” implemented from public funds – category C. The examples of such projects are the implementation of the Łódź “Manufaktura” or a new seat of the Silesian Museum in Katowice. The observation of these activities stimulates us to answer the question about the optimal scheme of the conversion of brownfields [13]. The German experiences made it possible to indicate the fourth type of post-industrial area, so called “D” within the framework of “ABCD” model [14]. Due to the need to incur in immense financial expenses, none of these sectors are interested in the development of these areas. The above analysis indicates some determinants that induce revitalisation activities. The model of recycling stages of post-industrial areas presented by E. Glass-Geltman refers to this model [15]. Similar conclusions are drawn by other researchers in their papers [1,3,4,6], stressing the relation between strong real estate market and investment pressure, legal status of the area and its specificity (among other things: debt, pollution) resulting in the freezing of an area and reluctance to take actions.

In the spatial structure of Polish cities, brownfield sites are still a significant problem. This is confirmed by over 50% of the percentage of such areas that have not been covered in the last two decades [16,17]. The first studies on a larger scale were carried out at the end of the 1990s and included half of the Polish cities. The scale of unused industrial areas reached less than 60%, whereas in the cities with over 50,000 inhabitants it was as much as 75%, and the size of those areas was over 100 hectares [16]. The successive research conducted in 2007 on the sample of more than 40% of cities, also indicated similar extent of the problem [17]. Less than 50% of post-industrial areas in the cities required taking actions, while their average area suggested that they were present in large complexes. The results of the research indicate a marked decrease in the percentage of undeveloped post-industrial areas, two premises for this state of affairs can be emphasized. At that time, two documents entered into the legal circulation. The first one was: “the Government Programme for Post-industrial Areas” [5], whereas the second one was: “the Act on Special Economic Zones” [18]. Undoubtedly, the legislator showed economic development paths of degraded post-industrial areas for the consecutive years. No official statistics are kept for the post-industrial areas in Poland, the only analysis was prepared for the needs of the scheme implemented in the Voivodeship of Silesia. For comparison, the area of industrial land in the Czech Republic in the years 2007-2015 was at the level 27-38 thousand hectares [6].

2.2. Revitalisation through reindustrialisation

One of the forms of revitalisation of post-industrial areas indicated by the “Government Programme for Post-industrial Areas” are economic zones, which can be implemented in the convention of Special Economic Zone or the Economic Activity Zone. These are not the only forms of land development for economic activity, considering the diversity of their organization, technological and industrial parks, business incubators as well as economic zones can be distinguished [7]. The legal act constituting special economic zones is the Act of 20 October 1994 on Special Economic Zones [16]. The authority approving the creation of the zone is the Minister competent for trade and industry by way of regulation and using the document of the Zone Development Plan. The Article 3 determines the objectives of establishing zones, which include business activity development and new technical and technological solutions, export development and the increase of the competitiveness of manufactured goods and services provided. The legislator indicates the possibility of reuse the existing industrial area resources based on Art. 3, Section 5), indicating as one of the objectives of the zones “development of the existing industrial assets and economic infrastructure”. The time horizon of the functioning of Special Economic Zones was set for 20 years [18], however, for many years the functioning of Special Economic Zones has been prolonged for many years. As a result of the last Regulation of the Council of Ministers of 13th July 2013, the zones will have been operating by 2026.

Two forms of the support for entrepreneurs presented below are de facto operational town planning instruments. The industrial and technological parks aim at economic activation as part of an already existing resource or its resuscitation within the area where it has already taken place – post-industrial areas. The implementation of the set of instruments of the industrial park and the industrial park was carried out by way of the Act of 29th August 2003 on amending the Act on financial support of investments and the Act on the conditions of admissibility and supervision of public aid for entrepreneurs [19]. The statutory definition of an industrial park referred to in Art. 2, item 1, section 14 defines this type of support targeted at small and medium-sized entrepreneurs to which a local government unit is a party. A key component of land local development is real estate with its technical infrastructure which is an element of a restructured and liquidated entrepreneur. Conversely, the mission of technological park is focused on dissemination of knowledge from research units and the business sector, the integration of science and development works. The character of the industrial park and the technological park points to two types of local land development; the first of them has the distinguishing features of brownfield. However, the skilful shaping of economic policy by self-government units may positively influence the emergence of structures binding economic resources, such as a cluster. It is worth emphasizing that investments within industrial parks emerging on post-industrial areas, or in the vicinity of these areas, have the tendency to create structures that take on the character of clusters. The industry preferences for specific investments are defined for some industrial parks [7]. Local government units may stimulate the formation of clusters, favouring specific investments of a given sector or supporting the development of a machinery park. Tarnowski and Bydgoski Machinery Park should be mentioned here [20].

3. Programming of the transformation policy of post-industrial and degraded areas in Poland

When discussing issues connected with the revitalisation of industrial areas, the activities carried out by the Voivodeship of Silesia are worth mentioning. The strong industrialization of the Silesia region has left its mark in the form of numerous factory buildings, infrastructure as well as accompanying building developments, determining the development of the cities in this region. The estimated size of the degraded and post-industrial areas in the voivodeship is 11.3 thousand hectares, of which more than half are within the Upper Silesian and Dabrowa Basin Metropolitan Area [21,22]. The intention of the Silesian programme of the conversion of post-industrial and degraded areas was to identify the resources of post-industrial and degraded areas and also to determine their status and to point to the method of model conversion. Moreover, the programme assumed the implementation of a mechanism of improving the process of conversion as well as management of the resources of these areas [21]. The assumptions of the programme coincide with the discussed revitalisation methodology in Poland, and they also realize the guidelines of the Government Programme for post-industrial areas from 2004. It should be emphasized that the Voivodeship of Silesia was the only voivodeship in the whole country scale which has undertaken the comprehensive programme of the conversion of post-industrial and degraded areas based on governmental guidelines.

Under Priority Axis III of the competitiveness of small and medium-sized enterprises of the Regional Operational Programme (ROP) of the Voivodeship of Silesia, the improvement of the development conditions of the small and medium-sized enterprises is assumed by creating investment areas within brownfields. The preferential policy in relation to degraded areas, that is to say, post-industrial, post-rail or post-military areas stimulates recycling of the areas in the urban tissue and allows for achieving the synergy effect of the development of quarters and district as an economic event or a flagship project. The voivodeship self-government anticipates the possibility of implementing comprehensive projects for the restructuring of areas which aim at economic revitalisation of an area in the form of economic activity zones, business incubators. However, the authors of the study emphasize that the adequate land restructuring (land reclamation, remediation, infrastructure territorial development) cannot constitute the main intention of the implemented project, but merely necessary actions to introduce the proper economic function for a given area. Funding of this aim is ensured as part of the allocation of funds from the European Regional Development Fund

in the amount of 30 million Euro [23]. In the framework of Regional Operational Programme's evaluation, potentially low interest and demand were shown in brownfield sites due to the complexity and length of the process used to give or restore economic and social functions to them. As risk-reducing activities, promotion of good practises was suggested in the scope of revitalisation projects of the areas with the brownfield specificity and the possible benefits from the implementation of such projects. It is worth noting that the general assessment of the provisions of the Regional Operational Programme, the objective 3.1.1 and 3.1.2. in terms of evaluation is negative, and it recommends a revision of specific objectives within the scope of, among other things, the preparation of degraded areas [24]. Regional Operational Programmes of the remaining voivodships only have generally formulated guidelines pertaining to preferences of the investments in brownfield areas used in the revitalisation context.

4. Research based on case study – data and methodology

On the basis of the already presented literature discussion, the following conclusion can be drawn. Brownfields are a significant problem of urban development in Europe, however, the scale of the problem is greater in Poland. There is no current research in this matter that would allow for an in-depth estimation of the brownfield area. No directional policy or a programme in this scope are implemented in Poland, with the exception of the Voivodeship of Silesia. These reasons have prompted the author to undertake research into the specificity of the conversions of post-industrial areas in the absence of a legal framework for such activities.

The choice of the subject matter of this case study was determined by the criteria. The post-industrial area should be connected with a large urban centre or be located within its agglomeration. Skawina is located on the area of former Aluminium Works and is an industrial town strongly linked to the centre, namely, Cracow. Another criterion was the period in which the restructuring of the area began, i.e. the 1990s. The prolonged restructuring process suggested that there had been problems with the revitalisation actions' implementation because several pilot attempts of the restructuring of an area by the local government turned into a fiasco. Moreover, the reason for the closure of this Aluminium Works had a significant impact on the selection of this area. The operations of the Aluminium Works led to the significant pollution of the environment with hydrogen fluoride and sulphur dioxide as well as it caused numerous health dysfunctions among the inhabitants of the city and the whole region.

For the purpose of this study, the author has initiated his own research procedure, with its main purpose being the diagnosis of the problems affecting the reduction of dynamics or freezing of revitalisation activities of brownfields. Drawing up the inventory of resources of the studied area in question as well as learning about problems connected with its functioning. Furthermore, the examination of the relations between entrepreneurs and getting to know how they are ingrained in a given area. The research procedure consists of the following four research tools: urban inventory, surveys on the conditions of conducting economic activity in the area of the former Aluminium Works (40% feedback), the direct observation during small-scale workshops and other outdoor workshops and three in-depth interviews with the representatives of the City Council.

The research was carried out at the turn of 2015 and 2016. The purpose of the urban inventory was to learn the structure of land ownership in the former Aluminium Works. Besides, reviewing the resources of urban substance including the presence of specific objects and state of infrastructure. This assessment allowed for a more adequate selection of actions which should be undertaken within the conglomerate. Drawing up inventory was supplemented with data from the National Surveying and Cartographic Resource. The analysis of the conditions of conducting a business activity is based on the online questionnaire and telephone questionnaire and also the visits to the seats of the enterprises. The questions were raised within the scope of the conditions for the location of business entities in the area of the former Aluminium Works, the state of ownership of land, the investments already carried out, the cooperation with other business entities. It allowed to determine how these business entities ingrained in the area as well as to examine vertical and horizontal connections, and learning about the

problematic issues of their current functioning. Due to the commencement of the works on the Municipal Revitalisation Programme of Skawina, the direct observation was carried out during the participation in two workshops. The first workshop concerned delimitation of degraded areas in the city, and the second one implemented within the framework of public consultations was conducted in the area covered by this study. The workshops were organized by the operator of the Revitalisation Programme and the Municipal Council. The last element of the audit were in-depth interviews with representatives of the Municipal Office conducted on the basis of a sheet which had two thematic sets. The first concerns economic base and Revitalisation in this scope, the second pertains to the proper revitalisation programmes.

4.1. Case study

The history of the industrialization of Skawina goes back to the plans for the creation of the Cracovian Industrial District. It started with the location of the first industrial plans within the area of the city in the first decade of the XX century [25, 26]. The next period of industrialization of the city were the years of the centrally controlled economy. In the years 1951-60, the project of the completion of the Aluminium Works from 1939 was finally carried out. In the 1970s there was the peak period of the development of that Aluminium Works. The activity of the Aluminium Works was supported by the Institute of Non-Ferrous Metals established in 1954 that provided scientific and research facilities to the plant. The activity of the electrolysis department led to the extreme environmental degradation, significant pollution with hydrogen fluoride and sulphur dioxide in the whole region. As a consequence, numerous health dysfunctions spread among residents. Modernization and adaptation of the plant to new standards exceeded the financial capabilities of People's Republic of Poland, especially during the crisis of the early 1980s. In 1981, the Aluminium Works was shut down and it was one year later transformed into Metallurgical Plant which operated until 2001 [26,27].

The scope of this research covers the area of the former Aluminium Works Skawina which is located in the western part of the city by the national road number 44 Kraków – Gliwice, linking Małopolska (Little Poland) with Silesia. Currently, it is an industrial complex under which 48 active business entities operate, where from 1000 to 1500 people are employed there according to the author's estimates. There is also a social settlement in the conglomerate, consisting of four barracks of the former workers' hotel adapted by the commune for housing purposes. The workers' housing estate is at the border with the industrial area, consisting of 9 bleak apartment houses erected during the construction of the steel plant. This workers' housing estate is inhabited by 486 people, including the inhabitants of the social settlement. It is worth noting that during the analysis of the Municipal Revitalisation Programme of Skawina, the area of the social settlement and the area of the former Aluminium Works were classified as degraded area and in need of revitalisation. Alas, in the framework of this study, the activities aimed at restructuring of brownfield were not anticipated [28].

The analysis carried out as part of the urban land inventory based on the governmental database "Central Registration and Information on Business" allowed to get acquainted with the business profile of enterprises. Basically, the entities present in the area of the former Aluminium Works conduct their economic activity connected with production and processing of metal products as well as recycling and reclamation of raw materials. Surveys conducted regarding the conditions of operating in this area comprised 19 entities (40% feedback). Those enterprises have been present in this area for 5-10 years and they do not have historical links with the activities of Aluminium Works. The group of the observed enterprises shows a significant indication of being ingrained in the discussed area, due to modernization of the machinery park or the expansion of the plant (75% of respondents). These investments were spread in time, and they were associated with considerable financial outlays. The structure of the links between entities results from industrial affinities as well as from economic relations between them. The vast majority of business entities (63% of respondents) create an element of the mutual supply chain (products and services). The character of vertical and horizontal connections between entities has the trait of a metallurgical cluster. The area of the former complex of

Aluminium Works with an area of 62.8 hectares is divided into 135 plots of land with different ownership structure. As it is apparent from the ownership structure available from the “State Geodetic and Cartographic Resource” (as of April 2016), more than half of the property functioned as a co-ownership with the State Treasury. Only 5 plots of land were owned by the Municipality. This state overlaps with the progressive sale of the estate of a bankrupt, during which Municipality has not managed to secure the road infrastructure. Due to the liquidation proceedings, a sale of the resource constituting road plots may occur. The problem is caused by the lack of marked out fire routes. The local plan for this area does not introduce any solutions regarding communication.

For more than half of the respondents, the essential location factor was specificity of that post-industrial area, guaranteeing the presence of infrastructure and buildings. This was the reason that they could have been easily adapted for their own purposes. The brownfield’s assets were also low entry costs compared with greenfield areas. This argument was especially raised by small entrepreneurs who had just started their own businesses and continued to develop.

5. Results and discussions

The course of this model Revitalisation process did not change with the new legislative perspective (the Act of Revitalisation of 9 October 2015) [29], because this process requires significant involvement as well as undertaking broader measures just than legal provisions [13]. The process will depend on the specificity of a given area, structural conditions (legal status of land, infrastructure, pollution, receptivity to conversions) and social (social infrastructure, stakeholders’ interest, organizational and financial possibilities). The statutory obligations set out certain directions of an action, showing necessary instruments, having an organizational and educational function for local government units. It is worth noting that it will be crucial to adopt the concept of a learning organization [30], with new solutions to problems and developing individual operational models when adopted by public administration [31,32,33,34].

From the perspective of recent years, the outflow of enterprises from the area of the former Aluminium Works outside the commune can be observed. The potential threat may be caused by the growing interest in moving business outside native brownfield. This problem especially concerns small and medium enterprises with the already developed position on the market. The vital element here is the mechanism of competition of the investment areas within the commune, namely, the brownfield areas and newly established greenfield areas created on the basis of a “design and build” concept. The factor that can potentially strengthen the pinning of entities is the idea to join a Special Economic Zone (SSE) or creating a technology park of industrial park. Moreover, it should be pointed out that the respondents’ awareness of how to become a beneficiary of such an instrument is vague. There were voices of disapproval among the respondents as a result of the failure of attempts to create a technology park within the complex and the lack of support from the local government in solving the problem of the functioning of that area.

The relationship between economic revitalisation of brownfield and industrialization presents two tendencies. The first tendency is the identity of the process of economic revitalisation and a reindustrialization. This happens when the conversion of a specific post-industrial area is based on the bottom-up reintroduction of the economic function, and it takes the form of spontaneous reindustrialization. Additionally, the cluster structures can be independently created, taking the area of the Aluminium Works in Skawina as an example. Then, one can indicate the synergy of the revitalisation and reindustrialization process in progress. The second is stimulating tendency which is created when initiating process by revitalisation process of post-industrial areas. Basically, it takes place as part of a directional economic development policy. It pertains to the implementation of comprehensive projects by the public sector, taking greenfield investments as an example. The correlation between the processes of economic Revitalisation and reindustrialization is conditioned by the attractiveness of post-industrial areas and their receptivity to investments.

6. Conclusions

The lack of a leading sectoral programme for brownfields results in the lack of control over the restructuring process of the post-industrial area. Moreover, the local government does not have the right instruments and legal apparatus and as a consequence it is impossible to moderate the process. In the current situation, the local government or the development agency is not able to secure the availability of infrastructure. During the bankruptcy proceedings of the liquidated plant, the local government is not a party to the proceedings, therefore it cannot enforce the right of first refusal from the public trustee on the basis of planning power of the Commune and the principle of spatial order development. The properly carried out process of restructuring of post-industrial area should aim at land re-parcelling, zoning, defining the development directions and as a consequence, the implementation of the local legal act in the form of a local spatial land development plan taking into account the policy at the national level.

The question about the course of the model revitalisation process should convey a certain scheme of actions, which in turn can be easily adopted to the needs of a specific post-industrial and degraded area. Basically, the initial scheme of the conversions of post-industrial area (figure 1.), which is the starting point for the start of the revitalisation process will be crucial. It is also important to ask about entities that have competence to handle such a complicated process. In the current situation, there are not administrative bodies at the central and regional level which are equipped with adequate competences and experience in conversion of post-industrial area. Additionally, there is no culture of complementary cooperation and the way to gain public and private co-financing. It is worth noting that flagship projects are repeatedly implemented on the basis of brownfield sites that have cross-regional nature, thus the municipalities are not able to cope with a big urban project.

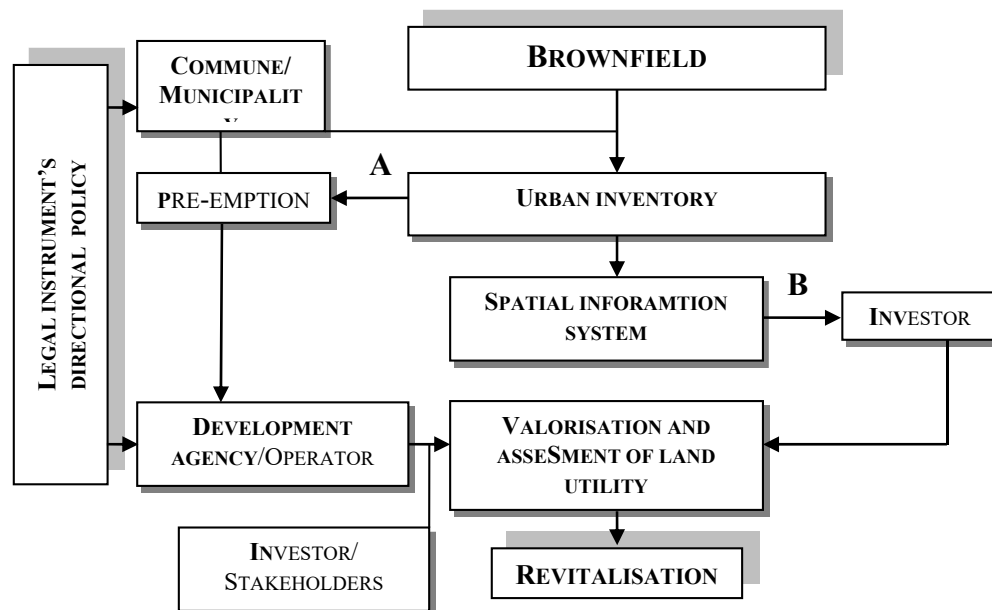


Figure 1. A model scheme of the conversions of brownfields

The economic development policy should take into account the prevention of negative phenomena that may have impact on brownfield areas, leading to the breakdown of the structures of the economic organization of these areas. The main barriers need to be overcome, namely: decapitalisation and degradation of the post-factory resources, including fragmentation of infrastructure. It is necessary to protect native brownfields, so as to balance competition between economic activity zones on the undeveloped areas (greenfield – brownfield impact). The aim of such policy of economic development should be to prevent the relocation of enterprises from the primary industrial area. As a result, the

outflow of enterprises may cause loosening and then deterioration of vertical and horizontal links between entities. Following the domino effect, this may lead to the deterioration of the existing organizational forms. Undoubtedly, the growth of the structure binding entities is technical, and is reflected in the historically conditioned potential of human capital which is oriented towards industrial work. The availability of the staff as well as research and development centres will strengthen the development of the cluster, both in situ and in the central centre, as the benefits of agglomeration.

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