

THE PROCESS OF REVITALIZATION OF POST-INDUSTRIAL AREAS IN THE SILESIAN VOIVODSHIP IN POLAND

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Abstract

The complexity of metallurgical companies' operations in the 21st century means that the assessment of the social and economic effects of metallurgical production must also refer to the rational development of degraded brownfield sites and attempts to reconstruct their environmental status before the economic period of exploitation. Revitalization is to be understood as the repair of degraded areas through total projects (integrating activities for the local community, space and local economy) territorially focused and coordinated in cooperation with the local community in a planned and integrated way by identifying and implementing revitalization programs. The article focuses on showing the quantity, status and ownership structure of areas degraded by the steel industry in Upper Silesia. The main problems of regeneration processes were defined and the principles under which revitalization can be effectively implemented were characterized. The directions of managing the revitalization process were also indicated and the main assumptions for the model of the regional regeneration operator were presented. This kind of approach is particularly important in the case of significant territorial concentration of degraded brownfield areas, which are significantly threatening the environment in the form of so called "ecological bombs". Agglomeration of the metallurgical industry in Upper Silesia predestines this region to intensify its efforts to restore the environmentally sound areas of the region.

Keywords: Metallurgical industry, revitalization, revitalization operator, post-industrial brownfield sites, environmental risk

1. INTRODUCTION

Contemporary meaning of the „revitalization” term requires a complex approach to many different areas that makes the urban organism functioning. These are: economic, social, ecological and also legal, financial and planning spheres. Undertaking and realization of revitalization programs is especially important not only due to improvement of living conditions and public area quality but also due to a fact that it's a significant city competitiveness growth factor in the over-local or even over-national scale. The Assumptions of Agreement for Integrated Development Policy for Silesian Region emphasize, first of all, restitution of economic and investment value to the post-industrial areas. One of the most important problems in Silesian Voivodship, both for its development and living quality of its inhabitants, is to restrain degradation of the areas, on which earlier an intensive industrial activity existed, including especially the post-mining or post-metallurgical areas. The governmental side, and especially the Development Ministry conducts research for preparing the Polish revitalization supporting system including such elements as a.o.: Revitalization Act, National Revitalization Plan or Guidelines for revitalization in frames of the operational programs for the years 2014 - 2020. Actions relating to revitalization belong also to wider context of Ministry actions for country's spatial policies and especially to the State Regional Development Strategy 2010 - 2020 and to the Country Spatial Management Concept 2030 [1]. These solutions are followed by actions (plans, financial programs) taken by governmental or self-governmental authorities at both regional and self-governmental levels [2]. These assumptions are connected with role of enterprises or communes that govern the degraded areas and are obliged to take repairing actions and with significance of institutions supporting within the financial and R&D areas. Moreover, the revitalization processes strongly engage the community. However, the social agreement only cannot substitute objective quality factors included first of all in proper technical rules, standards, legal acts or project efficiency elements. According to the Assumptions of Agreement for Integrated Silesian Voivodship

Development Policy, restitution of economic and investment value requires engagement of wide group of investors, with whom cooperation is necessary during all the given project revitalization process [3]. The aim of the article is to show an approach to revitalization processes - including in the metallurgical industry - in the Silesian region.

2. LITERATURE REVIEW

Revitalization term relates to actions carried out on the existing urbanized areas, which significantly differs them from terms defining actions focused on planning and realization of new build units on some new areas. The revitalization actions should include reconstruction of devastated but once living urban areas (e.g. old city centers), strongly depreciated or even lost due to industrial actions, war perturbations, post-war devastations or demolitions. It's difficult to imagine them as durable post-city empty spaces, thus their reconstruction causes a revitalization of such areas and the entire city too. The revitalization term includes also actions relating to restructuring of post-industrial or post-military areas. Thus, the revitalization term is very wide and aims of the actions involved are strongly differentiated. The post-industrial area revitalization consequence is erection of modern, attractive urban spaces, corresponding to the current needs of dynamically developing cities. Such places represent high architecture level and also are very popular and interested to society. Revitalization term relates to actions carried on the existing urbanized areas, which significantly differs them from terms defining actions focused on planning and realization of new build units on some new areas. The revitalization actions should include reconstruction of devastated but once living urban areas (e.g. old city centers), strongly depreciated or even lost due to industrial actions, war perturbations, post-war devastations or demolitions [4].

It's difficult to imagine them as durable post-city empty spaces, thus their reconstruction causes a revitalization of such areas and the entire city too. The revitalization term includes also actions relating to restructuring of post-industrial or post-military areas. Thus, the revitalization term is very wide and aims of the actions involved are strongly differentiated. Therefore, all the revitalization actions, known from West European examples, did subject to very complicated legal regulations. They were also intensively managed by a public sector and supported with means coming from state or regional budgets. It seems to be reasonable to ensure high accumulation to investors and also necessary participation of public authority as condition of successful revitalization process. Defeat of revitalization process is highly probable if necessary concentration of efforts and taking transformation with proper changing scale isn't properly taken into account. In many post-industrial spaces on the Upper Silesia area, especially in hard-coal mining or metallurgy concentration places problems have arisen due to city function underdevelopment. This phenomenon causes that the cities cannot guarantee to their inhabitants proper shopping, education, cultural or health care services, not mentioning the economic functions or technical infrastructure ensuring development of jobs. It's a rule that on the post-industrial (mining or metallurgical) areas inhabited by local societies long lasting unemployment phenomenon remains. People's earnings are low, with large share of not enough social help [5].

Low or improper education level, not enough for current requirements, results in social pathologies which cause advancing process of the area, material substance and social & economic structure degradation. Weakly scale till now, depending on population income and wealth level, the space segregation phenomenon occurs in metropolis and big cities in Poland [6]. The revitalization processes are realized in many European countries for decades. Their experience gives large knowledge spectrum relating to solutions and managing the operator's revitalization system as effective degradation detention practice and restoring the economic, investment and social values of post-industrial areas. Such practice in France or Germany describes use of the revitalization model employing regional level operators, while experience of Great Britain and Spain relate to implementing of the Revitalization Operator on a country level [7]. European experience allows formulation of assumptions for the revitalization operator in this article. Therefore, the proper and effective revitalization strategy must include actions on space & functional, investment & building, social & economical levels. It should be pointed out that within the financial prospective 2014 - 2020 the main source of co-financing of

revitalization projects by EU funds shall be the operational programs [8]. Moreover, the revitalization program project co-financing sources shall be the budget means coming from the state, local self-governments and also other means, including private ones [9]. Key significance, according to obligatory rules shall have local (commune or municipal) revitalization programs because the revitalization projects applying for public support must result from obligatory revitalization programs meeting requirement defined in „Guidelines for revitalization in operational programs for years 2014 - 2020” [10].

3. METHODOLOGY OF RESEARCH AND RESEARCH RESULTS

The Voivodship space divides to 4 sub-regions being, according to the Silesian Voivodship Development Strategy, the Voivodship Development Policy Areas: Central (5.578 km²), Western (1.354 km²), Northern (3.047 km²) and Southern (2.352 km²). Analysis of the Open Regional Space Information System of the Territorial Regional Investment Strategy of sub-regions, supplemented with additional databases relating to the area authorities, show that the total volume of degraded and devastated areas in Silesian Voivodship is almost 7.000 hectares. Total area of post-coal waste dumps is about 2.500 hectares and the other post-industrial areas, including the degraded or devastated ones is over 4.500 hectares.

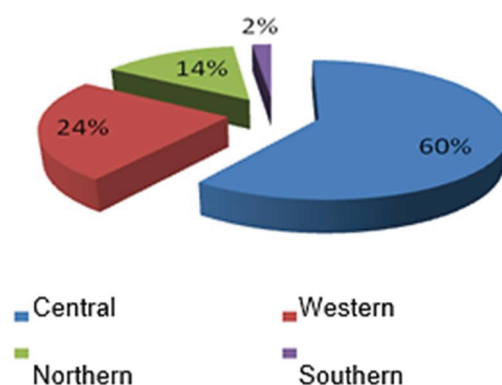


Figure 1 Arrangement of post-industrial waste dumps by Sub-regions.
Source: own study.

Analysis of the arrangement (**Figure 1**) shows unequivocally that the most of areas demanding intervention is located in the Central Sub-region - over 4.000 hectares (60 %). While the Southern Sub-region has, after verification of the ORSIP base and taking into consideration the sub-regional RIT strategy, only over 150 hectares (2 %) of the area, requiring revitalization. The Western and Northern Sub-regions have totally over 2.000 hectares (38 %) of the area. Area of industrial waste dumps, other than the post-mining ones (see **Figure 2**) belongs mainly to the Central - over 400 hectares and Northern - over 200 hectares Sub-regions. Land reclamation and revitalization processes on these areas depend on pollution and devastation levels, therefore each area should subject to separate analyses and projects.

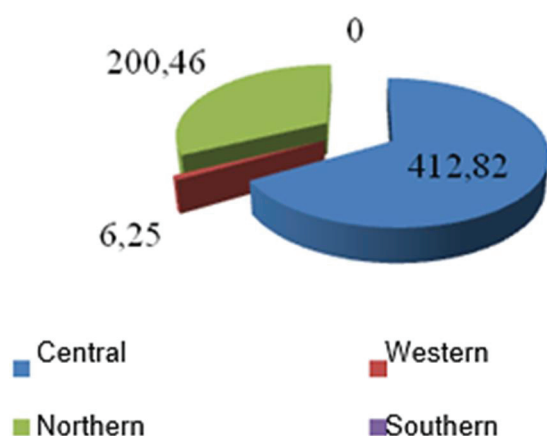


Figure 2 Industrial waste dump areas, other than post-mining ones by sub-regions [ha]
Source: own study.

Analysis of the post-industrial area governing subjects structure, including those degraded and devastated, having title deeds show voids in available bases or documents. In the Wide-available Information Platform - Post-industrial Areas (OPI-TPP) there is information relating to the area managers. The legal title owner should be verified individually basing a.o. on decisions issued by the Marshal Office. It's planned in the regional structures to make the decisions available within next year keeping necessary enterprise secrets. The subject

structure of the post-industrial area managers, including first of all those degraded and devastated in all the Silesian Voivodship taking into consideration the analyzed space areas, shows **Figure 3**.

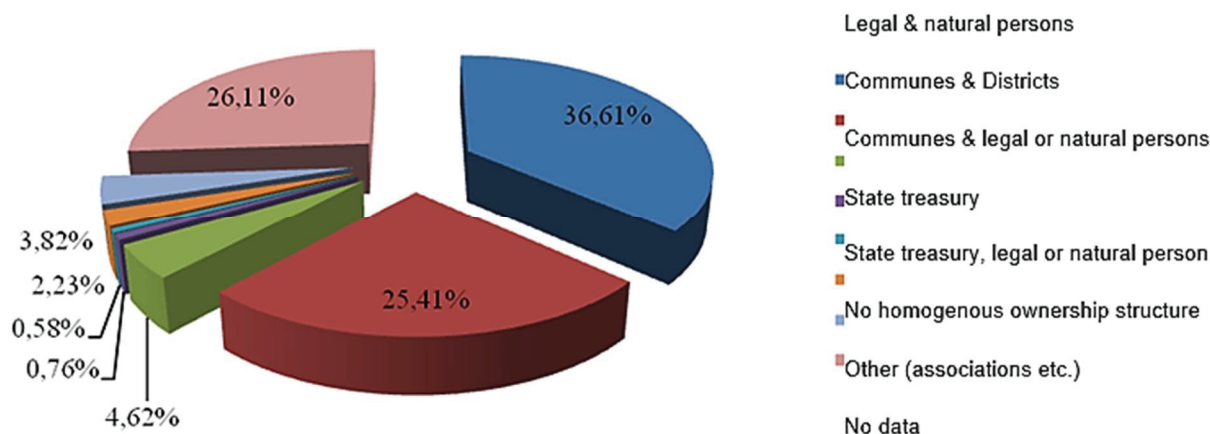


Figure 3 Subject structure of post-industrial area managers, including those degraded and devastated in Silesian Voivodship taking into consideration the analyzed space areas. Source: own study.

The post-industrial area managing subject structure analysis, including first of all the degraded and devastated areas, shows that the legal and natural persons manage over 36 % of the degraded areas, next there are communes and districts - over 25 %. This means that the Revitalization Operator must realize a double-sided policy. From one hand, he should gain the areas from legal or natural persons, and from the other hand he should cooperate with communes.

It should be pointed out that the data included in the Wide-available Information Platform - Post-industrial Areas (OPI-TPP) haven't been verified for 3 years and the data relating to managing subject may, in some cases, relate to subjects having a legal title. Therefore, the Revitalization Operator shall permanently supplement the database relating to the area managers because 26 % of the identified post-industrial areas, including those degraded, located in Silesian Voivodship has no data relating to the area managing subject.

Specifics of revitalization as a process of complex changes realized for inhabitants, in close agreement with the revitalization interested, requires regulation of all problems due to a society participation in this process.

From the revitalization point of view especially important are rules relating to information availability for all the citizens, including the right of access to information about public power organs activities (art. 61) and also a social dialogue, including dialogue and cooperation between different social groups (art. 20).

Areas requiring social & economic revitalization, according to stipulations of the State Regional Development Strategy characterizes a.o. with the following trends or features: drop of population number, weak jobs creation dynamics, low initiative, unemployment, poverty, social exclusion, specific demographic trends, e.g. ageing of local population, decay of family ties, stagnation on property market - perception of the area as non-attractive, high delinquency level, low extra-governmental organizations activities, low habitants activity measured by election absence, alcohol or drugs addiction problem, home violence, large percentage of national minorities (tensions between local people and immigrants), weak education level, degraded status of living quarters.

It should be kept in mind that within the social area the public initiative includes all the subjective imagination of reality, created in people minds as result of perception, mass-media influence or transfer of informal information. The Act foresees obligation of carrying social consultations during proceeding the acts taken basing on its stipulations, i.e. resolution relating to demarcation of the degraded area and revitalization area as well as the commune revitalization program. The social consultations shall also be preceded by taking

resolution defining principles of the Revitalization Committee assignment and activity principles. Moreover, the Act rule of art. 6 defines common regulations relating to carrying social consultations, disregarding their subject.

The assigned Revitalization Operator cannot concentrate only on a high quality of the realized works and improvement of product concepts, he must take into account all - often crossing or even inverse - interests of social players, directly and vitally interested in success of the taken revitalization actions.

Revitalization is one of the Government activity priorities. The central authority role is enabling and wide-spreading revitalization actions in the most degraded country areas. Therefore, identified need of development of legal frames and initiation of effective system solutions and enrichment of the financing source palette as well as widespread of knowledge and revitalization carrying model were made at the country level.

Currently the Development Ministry works in order to prepare the system for revitalization supporting in Poland. The system elements are a.o. Revitalization Act, National Revitalization Plan and Guidelines for revitalization in operational programs for the years 2014 - 2020. The revitalization actions are also inscribed into a wider context of Ministry actions relating to a spatial country policy, especially the State Regional Development Strategy 2010 - 2020 and the Country's Spatial Development Concept 2030, a.o. in the range of:

- restitution and consolidation of a space order,
- counteraction to suburbanization and optimization of management of the space and environment resources, mainly by giving a priority to investments the brown-field type instead of green-field one,
- deep reconstruction and adaptation of degraded objects to be able to meet new functions, e.g. cultural, recreation, social or economic ones,
- land reclamation of degraded areas for natural purposes.

The revitalization supporting system consists of the following pillars:

- legislation solutions meaning changes of obligatory rules and creation of new ones,
- revitalization supporting tools, including especially actions in frames of particular public policies for realization of complex, integrated revitalization programs (using preference mechanisms, territorial tool differentiation, etc.),
- financing of actions in frames of complex revitalization programs,
- information and substantial support, including a/o pilot projects.

According to the Agreement for Integrated Silesian Voivodship Development Policy, assignment of the Revitalization Operator shall enable the use of the support tools, including taking industrial activity using patents, technologies and solutions developed by Polish scientists in cooperation with scientific institutions or authors of those solutions - activity subject consistent with intelligent regional specializations. Efficiency of this mechanism requires also a significant financial support of the schools and other scientific institutions (especially Silesian ones) in the range of identification, working-out and testing the ideas and inventions for possibility and justification of their commercial use. To be recognized - establishing of Silesian Technology Transfer Centre - as school-consortium for preparing and verification of interesting technical discoveries and ideas and finding business partners that may be interested in their use or participation in the spin-out type companies suitable for it.

Thus, the Revitalization Operator may perform the role of Partner, Expert or Trustee of governmental or self-governmental authorities in the range of revitalization as Initiator of many cooperation forms, significant regional Employer, Innovator in the range of creation of new organizational, management or product solutions.

Due to the existing problem scale and levels the two basic Revitalization Operator models are suggested:

- Central Revitalization Operator Model (**Figure 4**),
- Regional Revitalization Operator Model (**Figure 5**).

The Revitalization Operator Management System includes the following assumptions:

- institutional, indicating subjects participating in the operator's system,
- formal & legal, including the Revitalization Operator assignment frames and ranges.

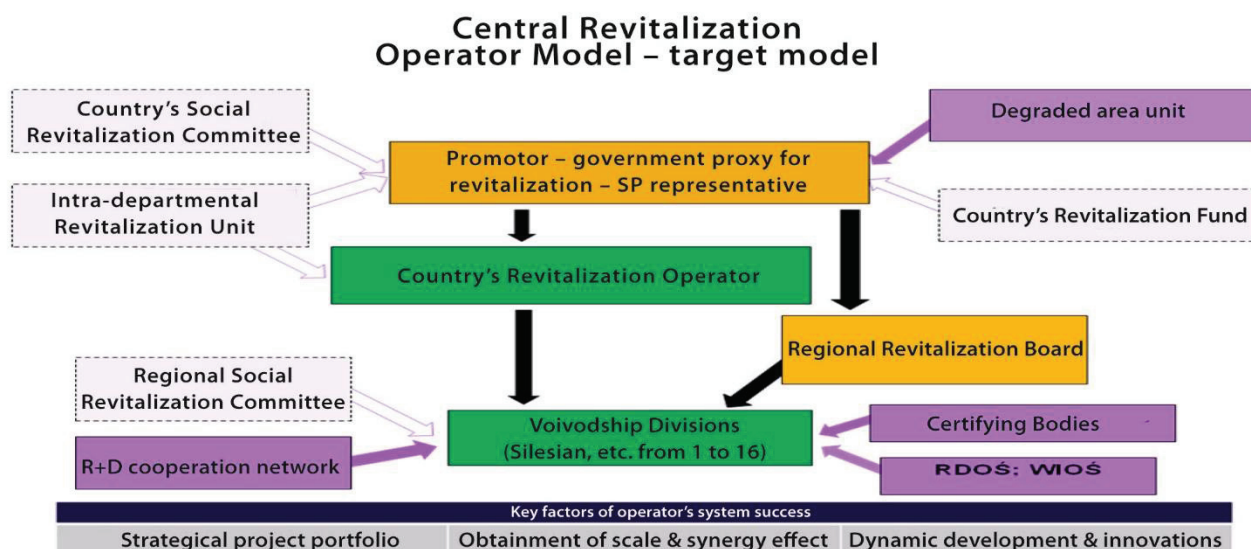


Figure 4 Central Revitalization Operator Model. Source: own study.

The Regional Revitalization Operator Model assumes creation of the operator system in Silesian Voivodship, with a key role of the Development Ministry Proxy. Details shown in **Figure 5**.

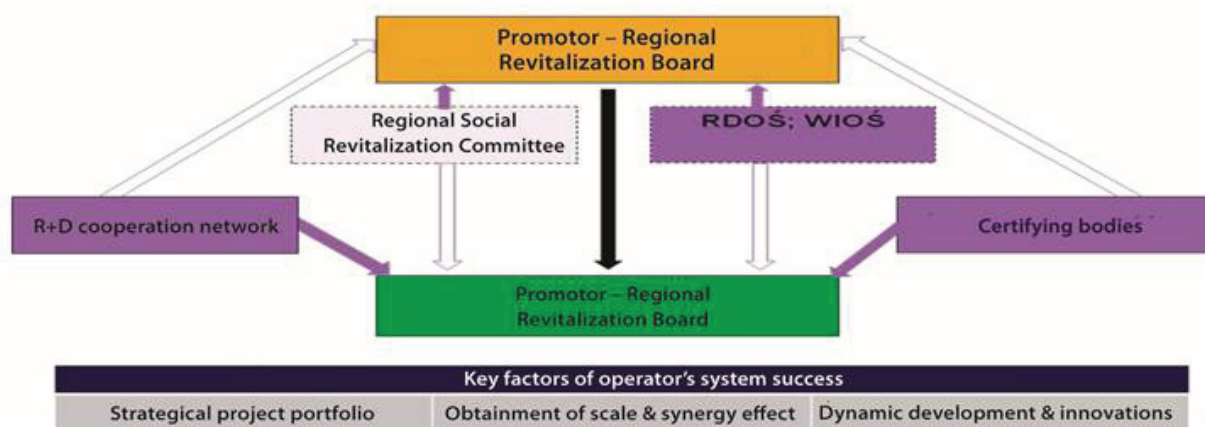


Figure 5 Regional Revitalization Operator Model. Source: own study.

Scope of necessary revitalization works may be strongly different depending on the given degraded area type. Moreover, the priority Revitalization Operator tasks shall include verification of action direction, including identification of complex actions relating to synergic revitalization of different type areas. Selection of areas to be revitalized should take into account first of all the criteria deciding their investment attractiveness, including: access to a road infrastructure, density of population (ready market size for commercial activity or labor market for production activity), economic infrastructure (business environment institution density, proximity of scientific & research centers, proximity of economic zones, etc.). It should be kept in mind that during definition of land reclamation of each particular area it's necessary to take into account a wide spectrum of criteria: economic (economic calculation), formal & legal (ensuring protections resulting from law rules), geological & engineering

(individual features of post-industrial areas), hydrological, cultural, spatial, social and natural factors. Therefore, precise estimation of total land reclamation costs requires detailed analyses of each degraded area according to the Operator's Algorithm of the Standard Revitalization Process Procedures.

4. CONCLUSION

In case of susceptible actions the Revitalization Operator should take into consideration possibilities and limits of actions within social groups and according to the social consulting system [11]. All the phenomena deciding a necessity of taking revitalization actions such as high intensity of social help use, especially due to a poverty problem, relatively high unemployment and delinquency, low inhabitant initiative and high percentage of employed in traditional economy sectors occur with high intensity on the analyzed areas. Implementation and use of the Operator's Algorithm of the Standard Revitalization Process Procedures requires implementation of the project management system. Project Management system is a basic tool for Revitalization Operator enabling him implementation of a business model, which shall allow creation of market relation and competence advantage, connected with works realization quality. The Revitalization Operator Projects should be grouped and portfolio managed in coordinated way in order to obtain advantages and control impossible to obtain if managed individually.

We propose a creation of the project management system the main elements of which are:

- Operator's algorithm application for the standard revitalization process procedures,
- detailed planning, budgeting and monitoring of project tasks,
- cooperation and outsourcing management using the model of integrated management (cooperation) with the interested,
- project mapping, analysis and risk evaluation,
- modern project management tools application (agile project management - Agile, ICT tools),
- use of the R+D+I sphere potential,
- product and revitalization service certification,
- selection and development of competent employees.

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