

SOCIAL AND CULTURAL CONTEXT AS AN INDICATOR OF SUSTAINABILITY OF BROWNFIELD REGENERATION

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Abstract. *The research shows the most important objectives that lead to a sustainable outcome of brownfield regeneration, based on literature review in the academic circles and leading European projects involved in brownfield regeneration. After identifying the most important drivers of the process of regeneration, the aim of the research was to identify which are the objectives that need to be strengthened in order to achieve long term sustainability of brownfield regeneration. In that matter, the main focus of the paper is social and cultural context which is an indicator of sustainability of brownfield redevelopment projects in a way that does not necessarily mean economic sustainability. Social and cultural objectives of brownfield regeneration have been listed with practical examples of how they could be achieved based on positive European experiences.*

Key words: *brownfield regeneration, sustainability, social, cultural, sustainable objectives*

1. INTRODUCTION. THE BEGINNING OF THE BROWNFIELD PROBLEM

The second half of the 20th and the beginning of the 21st century have an important demographic characteristic – the exponential growth of the population. Another trend, according to the United Nations, is that by 2030 about 60% of the world's population will live in urban areas, based on the expected growth of the population (compared with, for example, 29% in 1950). Therefore, some authors emphasize that 21st century will be century of urbanization (Edlicher et al., 2007). With such forecasts appears bigger need for sustainable use of urban land. On one hand, having in mind that the land is a finite resource, in order to protect intact ecosystems and ensure sustainability, there is awareness, especially in the developed countries, of the imperative of land use in the most efficient way. On the other hand, every year thousands of square meters of undeveloped land in the European Union are being appropriated for housing, roads, industry, and

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recreation, without full consideration of diverse tangible and intangible services or the real values that those soils provide (European Commission, 2013).

An important component in the context of sustainable land use problems is the existence and constant increase of brownfield sites, as well as numerous difficulties on the way to their regeneration (CABERNET, 2007). Under the influence of digitalization and rationalization, and, more importantly, in the context of globalization, industrial activities have undergone significant changes. In particular, significant effects are seen in the reduction of the number of companies and the total loss of the whole manufacturing industry and industrial centers. The growth in other industries and the transformation of the urban lifestyle have led to significant changes in land use, which have contributed to the creation of brownfield sites in urban areas. All these processes have left Europe with a significant legacy of brownfields (COBRAMAN, 2009). The first generation of brownfields in Europe occurred after the closure of large industrial giants in 1970s. Overall, abandonment or land use changes are normal and due to the changes of cities; unused land becomes a problem when there are obstacles in its reintegration into the urban form or when its quantity is too big. Restructuring of small brownfield sites within the urban fabric has become more obvious in 1980s. But, in the early 1990s, military reform and reducing the need for military infrastructure have contributed significantly once again to the problematic brownfield sites (CABERNET, 2007).

Since the sustainable land use becomes more significant in the recent decades, brownfield regeneration increasingly plays an important role in preventing urban sprawl and improving the quality of urban environment, thereby contributing to the creation of conditions for sustainable development (COBRAMAN, 2013). However, the focus on regenerating brownfield sites has opened up a number of issues, both in the academic world and in the policies of governments of many countries. Regeneration of brownfield sites in the context of sustainability today is a significant challenge due to the complexity of the problem. A key aspect of complexity relates primarily to the number and diversity of actors involved in the process of brownfield regeneration (CABERNET, 2007). Respect for the vision, values, and interests of all directly or indirectly involved parties (representatives of the public and private sectors, as well as the citizens whom regeneration process in some way touches), is the beginning of a potentially sustainable brownfield regeneration.

2. THE NEED FOR SUSTAINABLE BROWNFIELD REGENERATION

Sustainability in the urban land use has become one of the focuses in the policies of governments of developed countries, with emphasis on economic, social, and environmental well-being (Dixon, 2011), which primarily involves urban development that promotes economic growth, but supports social inclusion and minimize the negative impact on the environment. However, there are cases in which the brownfields along with poor land management practices led to urban decay and social conflicts. Dealing with the very roots of the problems related to the unsustainable land use, particularly brownfields, is a challenge at the beginning of the 21st century, whose importance should not be underestimated (COBRAMAN, 2009). Economic, social, and environmental loads are significant and continuance with unsustainable practices of land use may increase conflicts in densely urbanized regions. For example, many cities are faced with the growing problem of urban sprawl, existing and creation of new abandoned areas, traffic congestion, environmental

pollution, and overall degradation (CABERNET, 2007), which puts pressure on the urban system and the citizens themselves, affecting the economic performance and quality of life.

It is believed that the re-use of urban land can contribute to creating a sustainable urban environment by preventing urban sprawl and migration from central urban areas. It is a mechanism which can provide more compact cities in order to make more efficient use of urban infrastructure and reducing the need to travel (Williams, Dair, 2006). Therefore, the regeneration of brownfield sites, from the very beginning of the awareness of the need for it, was taken as a process that contributes to the sustainability of urban areas. In many official documents (for example, DETR (2000), ODPM (2004) in England) brownfield regeneration is introduced as a term that is sustainable as it is and a key indicator of sustainability (Pediaditi et al., 2005).

However, what is sustainable brownfield regeneration in practice remains unclear (Williams, Dair, 2006). There are many examples in which successful brownfield regeneration proved sustainable only in the short term, because it failed to meet the economic, social, environmental, and physical needs holistically, as well as to consider the long term impacts of the process as a whole (Pediaditi et al., 2005). After numerous unsuccessful examples of revitalization, the need for a definition of sustainable brownfield regeneration has been perceived and numerous official European documents emphasize the imperative of using the principle of sustainability. However, the implementation of the policy objectives to the specific brownfields remains problematic. According to Williams and Dair (2006) the first reason for this is that most policy documents and guidelines in practice are unclear and open to interpretation. The second is that many of these guidelines are not precise in defining sustainability; in some sustainability involves only the protection of the environment, while others include economic and social component. Then, it is not always clear which aspects of development should be sustainable – is it the process of rehabilitation of land, the planning process, use of the end product of regeneration, or is it all together. Finally, some of the goals of sustainability in the implementation process can be contradictory, mostly economic and social goals.

The debate over the definition of sustainable development in general, continues already for more than 25 years. However, a common and most widely accepted definition is: "Sustainable development is one that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987). In addition, the amended definition of sustainable development advocated by, among others, the featured European network RESCUE (Regeneration of European Sites in Cities and Urban Environments) is: "Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs; not simply the use of resources at a rate which could be maintained without diminishing future levels, but development which also takes social implications into account" (RESCUE, 2004). The aforementioned European network, with the aim of an integrated approach to brownfield issues, developed the widely accepted definition of sustainable brownfield regeneration: "Sustainable brownfield regeneration is the management, rehabilitation, and return to beneficial use of brownfield land, in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations in environmentally sensitive, economically viable, institutionally robust and socially acceptable ways within the particular regional context" (RESCUE, 2004). Sustainable regeneration of urban brownfields require the identification of appropriate options and their

proper implementation in an environmentally, economically, socially, and institutionally correct way. To be sustainable in the long term, brownfield regeneration is to be played within a specific regional context, respecting the potentials and the limitations that certain brownfield sites have and all the specificities of the wider neighborhood.

3. OBJECTIVES THAT SUSTAINABLE BROWNFIELD REGENERATION SHOULD SATISFY

In order to better understand sustainable brownfield regeneration and its effective applicability in practical cases, many authors (Pediditi et al., 2005; Williams, Dair, 2007; Wedding, Crawford-Brown, 2007; Morio et al., 2013; Sardinha et al., 2014), as well as many significant projects within the European Union (CABERNET, RESCUE, REVIT, CLARINET, etc.) were involved in defining the framework for assessing the sustainability of brownfield regeneration by establishment of specific indicators. Sustainability indicators or objectives that process and product of regeneration must satisfy have the task to provide a clearer understanding of the issues of sustainability, possible conflict situations, risks, and positive outcomes in certain contexts to the stakeholders in the process of brownfield regeneration.

One of the most accepted frameworks for assessing the sustainability of brownfield regeneration in academic circles, is the one developed by British authors Williams and Dair (2007). One part of this framework is the identification of stakeholders who are in certain ways concerned by brownfield regeneration, while the second part makes the list of sustainability objectives that stakeholders should keep in mind when developing brownfield projects, with examples of how those objectives could be met. The approach that the authors had in developing the second part of the framework consists of the following: (1) establishing the definitions of sustainability in the context of brownfield regeneration, (2) developing sustainability objectives that can be achieved in the process of regeneration on the basis of a series of precise definitions, and (3) search of practical examples and mechanisms of how these objectives can be achieved. The advantage of this approach is that establishment of sustainable objectives avoids strict prescription of specific actions in the regeneration process, which allows flexibility in the way of achieving the set of goals. Flexibility in this case plays an important role, having in mind that there are no two same brownfields on which same actions could be applied with same results.

Williams and Dair (2007) base setting the sustainability goals on the assumption that sustainable brownfield regeneration requires the integration of economic, social, and environmental development in a manner that is equitable and sustainable. The result is a part of the framework for assessing the sustainability of representing all components of sustainability (economic, social, and environmental).

Economic objectives

Regeneration of brownfield sites provides an opportunity for sustainable economic development in several ways: through a business that is directly involved in the implementation process of regeneration, through operations that will be found on a brownfield site after completion of regeneration, through investors whose main interest is the increase in value of capital, as well as through economic activities of households and other users involved in the use of regenerated brownfield sites.

Social objectives

Social sustainability in the context of sustainable urban development can be viewed through two different aspects. One of them includes elements related to an individual and individual well-being, such as health, shelter, endurance, education, mobility, and equality of people, while the second aspect refers to a group or collective social elements, which are commonly associated with social interaction in order to satisfy some common needs.

The environmental objectives

Environmental protection is the simplest criterion through which one can express the viability of a specific brownfield regeneration in a spatial context, keeping in mind that the results are visible, easily measurable, and literature in this field is numerous. It primarily involves wise use of natural resources, protection of ecosystems and diversity of flora and fauna.

4. SUSTAINABLE GOALS SET UP BY LEADING EUROPEAN PROJECTS INVOLVED IN BROWNFIELD REGENERATION – RESCUE, CABERNET, COBRAMAN

Reuse of brownfield sites rather than greenfield generally makes a positive contribution to sustainability. However, as already noted, the positive effects can be compromised by establishing functions that are not in compliance with certain regional context and context specificity of the location. In order to avoid such scenarios numerous European projects, agencies and networks are involved in defining parameters that can affect the outcome of the assessment of sustainable brownfield regeneration. Although their approaches are different, mostly everyone agrees that a prerequisite for the sustainability is the integration of economic, social, and environmental sustainability goals under the auspices of the specific regional context.

European network RESCUE in the 2004 report, presented the basic objectives with regard to sustainable land use planning and urban design on brownfield sites. The objectives are structured in spatial sequence, starting from the regional level, through the city and urban districts, to the level of actual brownfield sites (RESCUE, 2004): (1) to promote land use functions that match regional socio-economic demands and needs, (2) to integrate the reuse of brownfield sites into a regional land management, (3) to integrate the reuse of brownfield sites into the urban development, (4) to achieve benefits and prevent adverse impacts on the local neighborhood, (5) to generate and safeguard employment and economic development, (6) to promote land use functions that suit the natural and man-made environment of the site and its neighborhood, (7) to save resources, (8) permeability, (9) to provide adequate access, (10) to achieve high design quality, and (11) to create and maintain flexibility and flexible urban design.

On the other hand, the network CABERNET (Concerted Action on Brownfield and Economic Regeneration Network) in 2007 explored the key issues of brownfield regeneration, setting four basic dimensions of sustainability: (1) economic, (2) social and cultural, (3) environmental and (4) institutional dimension. CABERNET's position is that the economic aspect and potential profit are key drivers of brownfield regeneration. Attractive brownfield sites are usually not problematic, because the private investor has an interest, and

the risks are minimal. However, less attractive brownfields, those outside the urban area or contaminated ones, are faced with the problem of investment, because they are too risky for private investment. In such cases, public-private partnerships are being proposed (CABERNET, 2007), and the first step has the country in finding a private partner. When it comes to the environmental side of brownfield regeneration, the main focus of the research of CABERNET is environmental management, policy and regulation, then the environmental aspects of planning and environmental tools necessary for the preparation and regeneration of brownfield. CABERNET's premise when it comes to social aspect is that brownfields damage the social fabric and cultural heritage in their environment. Most of brownfield regeneration projects are driven by economic objectives along with environmental, from which arose the need to strengthen social and cultural aspirations. Without considering social and cultural influences, brownfield regeneration appears to be successful only in the short term.

The project COBRAMAN (Manager Coordinating Brownfield Redevelopment Activities) in its report of 2009 shows a different approach in the analysis of sustainable goals. The key outcome of the project was a report in the form of a base of information on previous brownfield regeneration projects. The basic idea of this project was creating a specific tool which will be useful to direct or indirect participants in the process of brownfield regeneration in practice. In addition to basic information about specific projects, places and periods in which they were implemented, the budget and other, the effects of brownfield regeneration projects are presented through eight dimensions of sustainability: environmental dimension, project management, economic and financial dimension, technical solutions, legal dimension, social dimension, marketing, and cultural heritage. Of the approximately 31 project implemented in the European Union in the period from 2000 to 2009, 12 most important were entered in the report (COBRAMAN, 2009). By reviewing the analysis of 12 projects a conclusion can be made that almost all projects are characterized by well analyzed project management and economic side. However, five of the 12 projects in their reports did not include social dimension of brownfield regeneration, and even 7 of 12 do not deal with the issue of cultural heritage.

5. THE NEED TO CONSIDER SOCIAL AND CULTURAL CONTEXT OF BROWNFIELD REGENERATION

Each of brownfield site is different; physical characteristics, history, dynamics of the surrounding community, location, contamination, property issues, cultural heritage - and each of these factors plays an irreplaceable role in the regeneration of brownfield. Brownfield specific objectives of regeneration, particularly social and cultural, can be overwhelming and confusing from the perspective of stakeholders who are not directly part of the identity of a particular community in which the brownfield is located. Therefore, in order to achieve the social objectives, at the very beginning of the process of regeneration, it is necessary to understand the vision of the local community. Perceiving the vision of the local community in the right way is a participatory and collaborative process that aims to merge not only public and private interests, but also the interests of the local community (APA, 2010). This method is of great importance for timely consideration of social and cultural components of a certain brownfield regeneration, which is often absent, bearing

in mind that the economic viability and the pursuit for profit are the main drivers of the process, often in conflict with the social and cultural objectives.

Each type of urban development has the potential to improve the social image of the neighborhood or the entire city. Generally, social issues are among the primary interests of professional planning, however, through brownfield regeneration due to its specificity, they are often absent. However, in European countries, there are many positive examples in which the social and cultural regeneration is a significant driver of changes in the urban fabric (CABERNET, 2004). Among such examples are the Barcelona model "city of people", then Belfast, Dublin, Manchester, and others.

Already mentioned project of the European network CABERNET, is one of those that seek a balanced treatment of all viable targets within the brownfield regeneration. One of the conclusions of the project, which the authors state in their reports is that there is a need to strengthen the social and cultural objectives. However, it is not enough just to identify the specific social and cultural sustainable goals. A significant step in the initial stage of regeneration is determining who is responsible for implementing these objectives, what is the cost, and what are the benefits of their implementation, which are specific instruments to be applied for their implementation, which measures will be taken and by whom in purpose of facilitating their implementation, and so on. CABERNET (2004) has developed eight socially and culturally sustainable goals in the pursuit of redefining the traditional concept of brownfield regeneration to the process that creates sustainable places that enrich the lives of people who live and work on those brownfields or in their surroundings. These objectives, given in the following paragraphs are not definitive, but are basis that is subject to change depending on the specifics of the particular brownfield.

5.1. Preserve cultures that are valued by the local people and exploit opportunities for new forms of social and cultural development

Frequent consequence of brownfield regeneration is the displacement or destruction of local cultural heritage and memory. On the other hand, regenerated brownfields often lack their own social and cultural identity. Therefore, there is a need to preserve the elements of present and past cultures in order to preserve continuity, but also the need to balance the new developments and opportunities for new forms of social and cultural development. A key element in achieving this goal is a realistic approach in finding connections between previous and new ways of using brownfield. CABERNET (2004) propose several methods to achieve this: (a) academic research on cultural and social history, its preservation and promotion, as well as the integration of cultural heritage in the new brownfield activities, (b) public involvement in the identification of significant and valuable structural elements of the brownfield, and (c) preservation and use of the most valuable objects on brownfield, their adaptation to the public content available to the community, thereby improving the quality of the environment.

5.2. Provide or enable (education) learning, or 'up-skilling', opportunities (improve employability)

Often, there is a brownfield regeneration in which the entire community needs new skills to be able to adapt to new economic opportunities and social identities. New opportunities for employment in the regenerated brownfield must be in accordance with

the abilities and skills of local people to be able to take advantage of emerging opportunities for employment and participate as citizens in the use of brownfield. One way of achieving this goal is the creation of the combined use of brownfield with a variety of employment opportunities and possibilities of education, vocational guidance, training individuals to compete in the labor market, but in the community in which they live.

5.3. Promote employment opportunities appropriate for the development

The general tendency in urban development is the creation of new and innovative jobs. When it comes to brownfield regeneration, it is not enough just to create new jobs, but it must be accessible to a wider range of communities in which the brownfield is located. In this sense, the availability means, on one hand, the physical one (providing adequate infrastructure so a brownfield integrates into existing urban fabric), and, on the other side, qualification (so locals with their education, qualifications and experience, can meet the demands of a new job).

5.4. Promote social equity in the brownfield development

This can be one of the most complex objectives. Each urban development requires a tendency towards satisfying the needs of different users of a brownfield, both local residents and potential immigrants. Sure, it is understandable tendency of many brownfield regenerations for attracting relatively rich layers of society in order to improve local economy and standards, but in such cases, equal attention should be paid to the proportional providing conditions for life, work and leisure to local residents, too.

5.5. Improve perceptions and image of the brownfield development

This objective involves the improvement of the overall performances of a brownfield into the awareness of those who live and work on it or in its environment, to create a sense of community, identity and place. Poor image of brownfields mainly is in connection with insufficient visual quality, abandoned physical structures, social stigma and degradation. The consequences may cause uncertainty among potential investors. In addition, a large part of the problem is resistance or fear of change in the population. To reduce the negative impressions, physical improvements of brownfield sites should be directed towards social infrastructure, such as public spaces. There are several possibilities for improving the perception of brownfield sites, and some of them are: (a) identifying hidden potential brownfield (historical, cultural or social-geographical), as the basis for creating a positive image of the location, (b) taking initiative in creating a significant symbol of the important structural elements, (c) creation of a new, progressive and interesting architecture, (d) efforts to create a greater number of public spaces and greenery, and (e) preserving valuable elements of the existing cultural heritage, highlighting its positive side and the architectural quality of the reconstructed structure.

5.6. Contribute to strategic sustainability objectives in the urban context

This goal includes creating the foundation for greater opportunities for socially and culturally sustainable forms within the city as a whole. Examples of this approach are: support more compact cities that are diverse in ethnicity, age and economic status; controlling population density areas to that levels in which public services are sustainable (as the rational

utilization of the capacity of public transport, hospitals, schools, etc.); and preventing urban sprawl with the problems of social inequality. In general, the aim should be to enable people to live, work and spend their free time on brownfield sites if they choose, which would reduce the need for daily travels. This goal can be achieved with good techniques in spatial planning. Its achievement, among other things, includes: (a) avoiding most of regenerated brownfield to look the same, (b) avoiding facilities and physical structures that have only one function, (c) support mixed ownership and investment in brownfield site, (d) creating sustainable public services and public transport, and (e) linking newly developed local economy to the market in a hierarchical sense (local, regional, national and international market).

5.7. Ensure physical accessibility

The main purpose of this goal is to enable regenerated brownfield to be physically connected with the environment, or to create new connections and overcome existing physical barriers. This also means providing access to brownfields not only for private cars, but also public transport, cycling or walking. In order brownfields were well physically connected to the rest of the urban fabric, the support within the existing legislation is needed. Also, a significant contribution to this goal is the spatial planning of high quality; regional plans with carefully integrated infrastructure for different ways of moving. Physical availability of brownfield sites can be accomplished by completing the following requirements: (a) inclusion of brownfield sites in the city or regional infrastructure systems, (b) avoiding the existence of only one transport system, (c) optimizing the functionality of the developed structure and reducing the length of necessary travel on the brownfield site, (d) avoiding crossing of different transport systems and giving precedence to pedestrian and cycling routes, and (e) setting the architectural standards without physical barriers for persons with disabilities, children, women and the elderly.

5.8. Provide livable, healthy and safe environments for local communities

Advances in understanding skills of urban design, planning and landscape architecture of a neighborhood in Europe at the beginning of 21st century, begins to result in examples of healthy and safe settlements that provide a high quality of life. The key positive elements such settlements have are a good approach to open and recreational spaces, high quality public facilities, pedestrian and bicycle paths, public transport connectivity system, as well as a sense of place. The key to the success of such cases is an innovative model of collaborative planning, urban design elements that enhance social security and stabilization of the population in a given locality through the improvement of living conditions, employment opportunities, security, social atmosphere, hygiene and health standards (CABERNET, 2004).

6. CONCLUSION

In order to achieve real progress in the field of sustainable brownfield regeneration, the fact is that many aspects of the regeneration process must be holistically recognized and assessed. In the current practice, there were also frequent cases that a holistic approach failed, emphasizing only certain aspects of brownfield regeneration, depending

on the case, mainly those that make certain profit and investment that was not risky for the private investor.

The social and cultural context of brownfield regeneration is the aspect that apparently was not attractive to private investors in terms of increasing the cost of regeneration without obvious indications of return of invested funds in the short term. Therefore CABERNET (2007) in the conclusion of its report emphasizes the need for promoting and strengthening social and cultural objectives, which are the key to sustainable brownfield regeneration outcomes in the long term. From the above stated can be concluded that the achievement of social and cultural objectives of brownfield regeneration is not the task for individual participants in the process for whom regeneration is in their interest, as only for the population in the brownfield surrounding which is directly affected by the decisions taken or for the state that must control the process. Problems of realization of social and cultural objectives concern wider range of stakeholders (CABERNET, 2007), among which an essential role are playing (a) regional, municipal and national political authorities by implementing control over investments by preventing neglect of sustainable goals that are of lower importance to investors, then (b) planners, who must provide detailed plans that include social and cultural aspects in accordance with the needs of the local population, as well as (c) the local population that is through certain forms of participation involved in the decision making process. Sustainable brownfield regeneration outcome is more obvious and more certain with a holistic overview of the issues, the collaboration of all parties involved, and respect of different visions and interests.

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SOCIJALNI I KULTURNI KONTEKST KAO INDIKATOR ODRŽIVOSTI BRAUNFILD REGENERACIJE

Istraživanje prikazuje najznačajnije ciljeve koji vode održivom ishodu braunfild regeneracije, zasnovano na pregledu literature u akademskim krugovima i vodećim evropskim projektima uključenih u problematiku braunfild regeneracije. Nakon identifikovanja najvažnijih pokretača procesa regeneracije, cilj istraživanja bio je utvrđivanje ciljeva koje treba naglasiti i kojima je potrebno obratiti veću pažnju kako bi se postigla dugoročna održivost braunfild regeneracije. U tom smislu, glavni fokus rada je na socijalnom u kulturnom kontekstu koji je pokazatelj održivosti braunfild regeneracije na način koji ne mora da podrazumeva samo ekonomsku održivost. Navedeni su socijalni i kulturni ciljevi procesa regeneracije sa praktičnim primerima kako ih je moguće ostvariti na osnovu pozitivnih evropskih iskustava.

Ključne reči: *braunfild regeneracija, održivost, socijalni, kulturni, održivi ciljevi*