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Protection and Reuse of Industrial Heritage: Dilemmas, Problems, Examples



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**Protection and Reuse of Industrial Heritage:
Dilemmas, Problems, Examples**

edited by Sonja Ifko and Marko Stokin

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Editorial

It gives us a great pleasure to present the second edition of our publication of ICOMOS Slovenia with selected articles they were presented at the 2th International Symposium on Cultural Heritage and Legal Issues, Protection and reuse of industrial heritage: Dilemmas, Problems, Examples, in Bled between the 1st and 3th October 2015.

The Council of Europe's early positions towards industrial heritage were a reaction to the consequences of the industrial decline in western Europe, and the principles were further developed in Recommendations of the Committee of Ministers of the Council of Europe in 1987 and 1990 [R(87)24 and R(90)20]. In 2013, the Parliamentary Assembly of the Council of Europe adopted the Resolution 1924 (2013) on Industrial Heritage in Europe, which draws attention to the most recent issues relevant for the integrated conservation, intelligent rehabilitation and sustainable revitalisation of industrial heritage sites and landscapes of Europe. One should also mention the constant alerts coming from the side of the Congress of Local and Regional Authorities of Europe to strengthen the local authorities' role in the preservation of industrial heritage "in situ". Lately, the initiative about European Industrial and Technical Heritage to be used as one of the central themes of European Heritage Days 2015 was put forward and actually implemented in many European countries. On the other side, ICOMOS Slovenia as an active member of ICOMOS International and ICOMOS Europe has dedicated an important part of its efforts towards international cooperation and pooling forces in the field of industrial heritage protection. Joining forces with the Council of Europe build synergies in following-up the Council of Europe conventions with revisiting these references and taking stock of the new challenges and issues at stake. Our common goal is to integrate innovative ideas, define new positions and open new perspectives with the aim to give this important dimension of our common heritage of Europe the role it deserves in the future multilateral and trans-frontier co-operation.

The present publication brings eleven new articles from different countries, especially focused on south-east Europe industrial heritage, were after the fall of Yugoslavia the new economic order led the collapse of many industrial factories and towns from socialist period and they are now in the process of decline. The nature of economic and political circumstances in south-east Europe are constantly and increasingly challenging the survival of industrial heritage - even "listed" monuments. Public interest is not always sufficiently expressed in decision-making process. The same is true about expectations of heritage communities associated with industrial heritage which still have little means of being expressed and taken on board. There has been an increasing trend of exploitation industrial heritage from which the traditional professional institutions are excluded because they are self-limited to their classical "protection" role instead of developing management approach. The fact is that changes affecting industrial heritage and its role in society require new responses and innovative solutions.

Sonja Ifko, Marko Stokin

Review

The book 'Protection and reuse of industrial heritage: Dilemmas, problems, examples' raises one of the most significant questions of heritage protection that came into the international public eye at the turn of the 20th and 21st centuries. In this period, many international organisations and bodies involved in heritage management have been engaged in various aspects of industrial heritage. Since UNESCO and Council of Europe are the most prominent international governmental organisations, the publication attempts to put stock in standards developed in the framework of UNESCO World Heritage Programme and Council of Europe's activities and confronts them with efforts of major universal non-governmental organisations, such as ICOMOS and TICCIH. The aim of giving an overview of international standards is itself worthy. The book combines them with a selection of analytical articles about the state of statutory protection, public perception, conservation and reuse by analysing cases from Western and South-Eastern Europe. The state-of-the-art comparison between the situation in both groups of countries shows that the South-Eastern countries lag behind the Western ones in every aspect of industrial heritage protection but the academic historical knowledge, the efforts of museum and conservation service experts and civil society activities, mainly organised at local levels.

The articles collected in the publication offer over 140 pages of intensive reading of well-documented overview of the industrial heritage history in selected countries, discuss problems and to some extent also exemplify good practice. The authors are renowned authorities in the field of industrial heritage research and the topics of their presentations cover well the purpose of the book. There are some discrepancies in technical format of individual articles, one could also come across some translation insufficiencies but such minor imperfections cannot override the prevailing positive impression.

The overall evaluation of the publication could be summed up as follows: it is of great value for readers interested in the issues of industrial heritage and also for heritage experts in general. One could only hope that the message of the book reaches decision makers, as well. The tone of some articles is somehow pessimistic but on the other hand authors share the conviction that education, awareness-raising and international cooperation can make headway in improving the situation.

Dr. Jelka Pirkovič



Coalmine Rudnik Trbovlje Hrastnik. Photo: Nace Nagode.

Urban Design Competition and Megaprojects in a Context of Identity of Cultural Heritage: Case Study Belgrade's Riverfronts

Summary

Industrial heritage sites that have lost their original function represent significant and valuable cultural heritage which is a part of the urban memory and material evidence of the past, with whose decay a city is losing a part of its history. This paper deals with the problem of preserving identity of industrial heritage sites in the process of sustainable urban regeneration. More precisely, paper deals with the problem of preserving tangible as well as intangible attributes of industrial heritage identity within a context of contemporary projects of urban regeneration. The significance of this problem lies within the contradiction between the industrial heritage sites as places intended for new urban functions in accordance with strategies of contemporary urban development and the industrial heritage sites as places with the inherited spatial, functional and cultural values important to the community. Therefore, the main planning task of sustainable regeneration is finding the balance between preservation and change of industrial heritage sites. In planning practice these changes are most often driven by economic and environmental interests, while cultural values as active components of material culture and urban memory of citizens are neglected. On the other hand, this problem arises from the ambiguous notion of industrial heritage identity, as well as from the lack of appropriate planning tools for identifying and analysing identity attributes that are valuable to preserve.

The aim of this paper is to draw attention to the complexity of identity of industrial heritage stemming from the various tangible as well as intangible values of cultural heritage. The paper advocates for using the concept of place as a framework for identifying and investigating identity attributes of industrial heritage sites which contribute to decision making in the initial phase of planning process. The planning treatment of industrial heritage identity in the process of riverfronts regeneration is analysed on the example of urban design competitions and megaprojects in Belgrade. The riverfront regeneration has been initiated through a series of urban plans, projects and design competitions. Some of these plans are located within two planned urban megaprojects: "Danube port" and "Belgrade on water". Analysis show that the imbalance between the ambitions of the city (authorities, professional associations) and current economic capabilities (overscale, expensive, not considering implementation in phases) is one of the main problems for the implementation of the plans and projects.

1 Introduction

The construction land within the city boundaries is one of the main strategic resources and factors of urban development, and at the same time an element of the competitiveness of cities and factor in attracting new investors and development activities. For many cities, abandoned industrial sites are the significant "reserves of space", and their regeneration represents an important mechanism for improving the quality of urban environment and achieving sustainable development. On the other hand, abandoned and underused industrial sites are at the same time potentially significant and valuable industrial and cultural heritage and part of the urban memory, as well as material evidence of the past. In this sense, the revitalization of these areas is a necessary step in preventing the continued deterioration of the remains of the industrial past and its fundamental intention is to preserve the integrity

of the material witnesses of a historical epoch¹. Within this framework the revitalization can be explained as a variety of features and options that allow that abandoned space serves contemporary purposes, while protecting past in the future². The benefits of restoration and preservation of valuable industrial heritage are manifold: the preservation of the urban landscape, economic and social revitalization of urban areas passivated, deliberate targeting of development with the introduction of control of land use and rules³.

Although sustainable regeneration of industrial sites implies the achievement of economic, environmental, social and cultural objectives, in practice the process of regeneration is mainly driven by economic and environmental goals. As a result, the historical, environmental and cultural values of these locations, as active components of material culture and urban memory of citizens, in projects and plans of regeneration are often neglected⁴. The result of neglecting these values leads to permanent destruction of the cultural, natural and architectural heritage and urban identity. Nevertheless, connection between the collective memory of the industrial landscape and the image of the city on the one hand, and local and regional identity and a sense of civic pride on the other, may represent the main driver of sustainable urban regeneration⁵. In cities that have suffered industrial decline, urban regeneration represents an opportunity to create new solutions for economic growth and development.

In context of contemporary discourse of protection and reuse of industrial heritage the reconciliation of heritage conservation and development is the main topic. The problem of preservation of industrial heritage probably arises from the ambiguity of the concept of identity of cultural heritage, and lack of understanding of its values that are mostly seen as tangible. The main question that arises from this assumption is what to preserve or what are important values or specific character of industrial sites that are valuable to preserve. This research is concerned with identity of industrial heritage being part of a wider concept of cultural heritage and its preservation. The aim of this paper is to draw attention to the complexity of identity of industrial heritage stemming from the various tangible as well as intangible values of cultural heritage and to propose a conceptual framework for identifying and investigating identity attributes of industrial heritage sites which contribute to decision making in the initial phase of planning process.

In the first part of the paper, theoretical framework for urban regeneration and the identity of industrial heritage is presented. The second part of the paper explores urban design competitions and megaprojects in Belgrade in a context of identity of cultural heritage. Most of the abandoned industrial sites in Belgrade are located on its riverfronts. During the last twenty years Belgrade's riverfronts have been focus of planners and architects as well as politicians. The urban regeneration of these sites have been planned and initiated through a series of urban plans, projects and design competitions. Some are located within two planned urban megaprojects: "Danube port" and "Belgrade on water". This paper explores these urban design competitions and megaprojects in the context of cultural heritage identity. Some results show that imbalance between ambitions of the city (authorities, professional associations) and current economic capabilities (over-scale, expensive, not considering implementation in phases) is one of the main problems for implementations of the plans and projects.

1 Simonović, D., Novaković, N., & Vujičić, T. (2011). Towards a strategy of regeneration of urban landscape: brownfields as a strategic resource. In I International Conference „Ecology of urban areas“, (pp. 439-449). Zrenjanin, RS: Faculty of Technical Sciences Mihajlo Pupin.

2 Stratton, M. (Ed.) (2000). *Industrial Building, Conservation and Regeneration*. London: E & FN Spon.

3 Alfrey, J., & Putnam, T. (1992). *The Industrial Heritage: Managing Resources and Uses*. New York: Taylor & Francis Books.

4 Bliet, D., & Gauthie, P. (2007). Mobilising Urban Heritage to Counter the Commodification of Brownfield Landscapes: Lessons from Montreal's Lachine Canal. *Canadian Journal of Urban Research*, vol. 16(1), (pp. 39-58).

5 Simonović, D., & Vujičić, T. (2014) Valuation and reactivation of the 20th-century industrial heritage and its relevance for strengthening the cultural identity of the Republic of Srpska. In Đukić, A., Simonović, D. and Vujičić, T. (Eds). *Browninfo. Toward a methodological framework for brownfield database development*. (pp. 23-42). Banja Luka, University of Banjaluka, Faculty of Architecture, Civil Engineering and Geodesy.

2 The importance of preservation of industrial heritage in the context of sustainable urban regeneration

Seen from a cultural aspect, abandoned and underused industrial sites represent part of industrial cultural heritage. According to the Nizhny Tagil Charter for the Industrial Heritage of the International Committee for the Conservation of the Industrial Heritage (TICCIH) from 2003, “industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value”⁶. These remains of industrial activity consist of “buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education”⁷. Besides, the values of industrial heritage as material evidence of civilization heritage with permanent and “profound historical consequences” are recognized by this charter⁸. However, not all abandoned industrial sites possess values that make them valuable remnants of its industrial past and industrial and cultural heritage. Social, cultural and architectural values make them significant in formation of cultural identity of the community. Therefore, regeneration of these sites implies a reconsidering of the industrial past and the memory of citizens in terms of continuity of development and preservation of the identity of the local community.

However, social values of industrial heritage are an important part of the identity of the citizens. They represent part of the collective memory and the history of an industrial progress and pride of local residents. Technological and scientific value of industrial heritage is reflected in the history of manufacturing, engineering and construction, and can have a significant aesthetic value in terms of architecture, urban design and planning. Historical values influence the design community with a strong sense of local identity and are an important catalyst for renewal and attracting investments⁹. In terms of visual quality, industrial sites are urban complexes with very special character. Many of them are important because of specific design of architectural buildings that makes them important urban landmark¹⁰. Specific spatial structures of industrial landscapes such as: silos, chimneys, conveyor belts and transportation structures have large perceptual and visual qualities that make them distinctive spatial elements in the overall image of the city, contributing to their vividness and recognisability¹¹ (Figure 1). The protection of these specific structures contributes to the improvement of urbanity and the visual identity of the wider region¹². On the other hand, the negative effects of losing the authentic symbol of industrial facilities from the city’s silhouette, stored in the memory of citizens are expressed through the loss of key elements of personal identity of individuals because of their identification with the physiognomy, character and the importance of cities in which they live. In this regard, it is important to understand the seriousness of the consequences of the disappearance of the spatial structure of industrial heritage that have for decades represented the dominant features of their physiognomy on the cultural identity of cities¹³.

6 TICCIH. (2003, July 17). The Nizhny Tagil Charter for the Industrial Heritage. Retrieved December 25, 2015, from http://ticcih.ss.mtu.edu/docs/1351492885_ticcih_charter.pdf.

7 Ibid.

8 Ibid.

9 English Heritage. (2004). *People and Places: A Response to Government and the Value of Culture*. London: English Heritage.

10 INTERREG. (2004). *Industrial heritage: the hidden face of European identity; INTERREG IVB North-West Europe Programme - Newsletter, n 4*. Retrieved March 10, 2012, from <http://3b.nweurope.eu/upload/documents/newsletter/1063.newsengjulyBD.pdf>.

11 Ibid. 6

12 Lynch, K. (1981). *Good City Form*. Cambridge, Massachusetts: The MIT Press.

13 Đukić, A., & Vujičić, T. (Eds.) (2014). *BrownInfo, Priručnik za uspostavljanje interaktivne baze podataka braunfeld lokacija (BrownInfo – Handbook for Brownfield Database Development)*, Banja Luka: University in Banja Luka, Faculty of Architecture, Civil engineering and geodesy, Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH, INOVA software engineering, d.o.o.

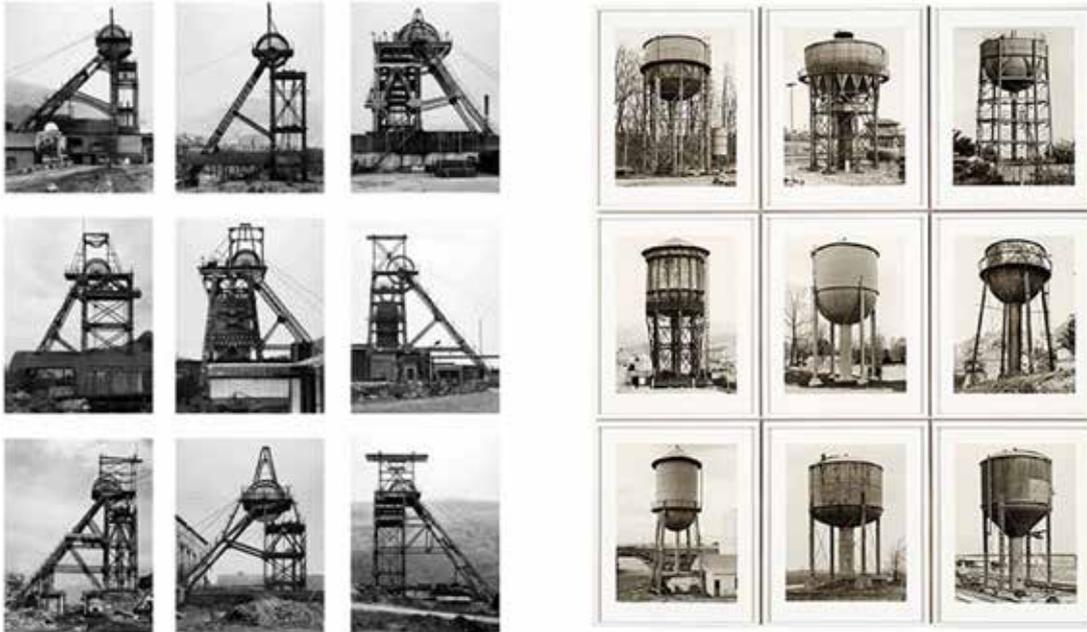


Fig. 1: Aesthetic potential of transient industrial structures: Typology of winding towers – left, Typology of water tanks – right. Source left: Becher, B., & Becher, H.(1980). Water towers, Retrieved January 19, 2011, from <http://collectingseminar.wordpress.com/2008/11/03/bernd-and-hilla-becher-collected-industrial-age-calvinist-holy-sites-nick-wylie/berndandhillabecher01/>). Source right: Becher, B., & Becher, H.(1967-96). Winding towers, Retrieved January 19, 2011, from http://www.moma.org/collection/browse_results.php?criteria=O%3AAD%3AE%3A8095|A%3AAR%3AE%3A1&page_number=4&template_id=1&sort_order=1.)

Lack of understanding of the multitude tangible and intangible values that abandoned industrial sites possess and messages they carry leads to their decline and complete disappearance, resulting in distortion of collective identity, based on the industrial past of community, and personal identity of citizens in terms of a sense of belonging to a community.

Due to above-mentioned connection between the collective memory of the industrial landscapes and images of the city, and local and regional identity and a sense of civic pride, the importance of industrial heritage is unquestionable in terms of renewal, improvement and creating a new identity of the city, which can represent an essential driver of sustainable regeneration¹⁴. Although, urban regeneration is framed by sustainability as “youngest” urban paradigm¹⁵, it seeks to integrate aspects, aims, and spaces of “older” paradigms providing liveable places¹⁶. Furthermore, urban regeneration of waterfront brownfield emphasises the need for this kind of integration providing “soft infrastructure” and objectification of different worlds into coherent whole¹⁷.

By promoting special features of cultural heritage sites, economic, cultural and social benefits can be achieved. Many authors emphasize the importance of industrial heritage for the improvement of identity of cities and their positioning in the global network and distinguishing compared to other cities. Tim Edensor¹⁸ emphasizes the role of abandoned industrial sites in creating an alternative aesthetic experience in contemporary cities in which commercial spirit dominates. This is of particular importance in the period of

14 Mrđenović, T., Đukić, A., & Stupar, A. (2015). Urban design and identity: re-creating waterfront brownfield Savamala case. In Gospodini, A. (Ed.), 2nd International Conference on Changing Cities 2: Spatial, Design, Landscape & Socio-economic Dimensions. (pp. 759-769). Porto Heli Peloponnese, Greece.

15 Reeves, D.(2005). Planning for Diversity: Policy and Planning in a World of Difference, New York: Routledge.

16 Ibid. 15

17 Vaništa, L. E., & Đukić, A. (2011). Regeneration of the post-industrial waterfront in Belgrade: recycling and re-use. In Međunarodni naučno-stručni skup Arhitektura i urbanizam, građevinarstvo i geodezija, juče, danas, sutra. Banja Luka, BiH: Arhitektonsko-građevinski fakultet Univerziteta u Banjoj Luci.

18 Edensor, T.(2005). Industrial Ruins: Spaces, Aesthetics and Materiality. Oxford: Berg Publisher.

globalization and homogenization of urban culture, identity and space. According to Mihajlov¹⁹, reuse and restoration of industrial heritage enable solving social problems in cities. Moreover, in cities that have suffered industrial decline, industrial heritage renewal represents an opportunity to create new solutions for economic growth and development.

3 The concept of place in the context of identity of industrial heritage

In order to define the approach to the regeneration of abandoned industrial sites, based on theoretical findings, critical examination of the concept of identity of industrial cultural heritage and its preservation is of great importance. Many factors, such as: social, cultural as well as the built environment are combined to shape identity. Identity can be characterized as the extent to which it is possible to recognize the space as different and special compared to other spaces because it has a strong, clear and unique character²⁰. For analyzing the identity of industrial heritage it is important to understand the concept of place and its identity from the place theory which is studied in the fields of different scientific disciplines. This concept in a comprehensive way includes intangible values of abandoned industrial sites which are related to the experience of space and as well as tangible, which are related to the specifics of the physical features of place that affect the experience²¹.

For thorough understanding of the concept of place it is valuable to make a distinction between space and place. Space is usually perceived as a material embodiment of feelings, images and thoughts²², while place is center of action and intention²³ and "focus were we experience the meaningful events of our existence"²⁴. Places are included into "the intentional structures of all human consciousness and experience"²⁵.

According to Relph here are three main components of identity of place: the static physical setting, the activities, and the meanings. These fundamental components of place are "irreducible one to the other, yet are inseparably interwoven in our experiences of places". These three components are always interrelated in specific way affecting each other and forming dialectics that make specific place identity. In case of abandoned and underused industrial sites, physical component can be understood as build and natural environment each of which offers its own characteristic possibilities for experience. Activities and functions can be distinguished as being former or present. In other words, they can be analyzed in the context of activities of industry that is closed and current uses of facilities if there are any. The first two of these elements can be easily appreciated, but component of significance and meaning is difficult to grasp. The meaning of places is not property of physical setting, objects and activities- rather it is a property of human intention and experience. In terms of meaning, the abandoned industrial plants in cities are more often part of the individual and collective memory and the history of an industrial progress and pride of local residents. Thus, each of these subcomponents is of considerable importance in defining the identity of industrial heritage.

There is one more important aspect of identity of place that serves to link these three components and has been variously termed "spirit of place", "sense of place" or "genius loci". According to Norberg-Schulz²⁶, the concept of place that the urban planning practice is usually based on is exactly genius loci, which is more than simple summation of elements of identity and can persist in spite of profound changes in these elements. On the other side,

19 Mihajlov, V.(2009). Industrial heritage renewal - social motives and effects, *Sociologija i prostor*, vol.184(2), (pp. 139-164).

20 Ibid. 13

21 Castello, L.(2006). City & time and places bridging the concept of place to urban conservation planning, *City & Time*, vol. 2(1), (pp. 59-69).

22 Tuan, Y.(1977). *Space and Place*. Minneapolis: University of Minnesota.

23 Relph, E.(1976). *Place and Placelessness*. London: Pion.

24 Norberg-Schulz, C.(1971). *Existence, Space and Architecture*. New York: Praeger

25 Ibid. 24

26 Norberg-Schulz, C.(1980). *Genius Loci: Towards a Phenomenology of Architecture*. London: Academy Editions.

the identity of place is social factor which depends on the individual or group image of that place. For most purposes, identity of place can be described by image of place which can be defined as a mental picture that is the product of experience, attitudes, memories and immediate sensations²⁷.

The essence of place lies in experiencing it from inside, which greatly differs from experiencing it from *outside*²⁸. The primary intention behind the concept of place is to be *inside*²⁹. According to Relph to be inside a place is “to belong to it and to identify with it, and the more profoundly inside you are the stronger is this identity with place”. Thus, abandoned industrial sites are experienced from inside. This mode of experience means immediate and direct experience and implies unselfconscious commitment to place.

The interpretation of meaning of concept of place has contributed to the contemporary theory of preservation and protection of industrial heritage focusing attention on the intangible aspects of heritage, such as: environmental values, distinctive character and memory. In support of this assertion, by linking the concept of the identity of the urban landscape with the memory of society, Hayden argues that the place identity is inextricably tied to individual and collective memory³⁰. Similarly, Castello emphasizes the importance of memories for people’s experience of space, which makes the memory a significant part of its structure³¹. Furthermore, the memory as a component of the place structure can affect “good” or “bad” image which that place evokes³².

Understanding the complexity of the concept of place is important for planning the protection and preservation of industrial heritage. Preserving the identity and spirit of place in the process of regeneration of abandoned industrial sites implies reviewing of tangible and intangible or symbolic value and meaning of industrial heritage which facilitates making decisions on the treatment of its material remains and contemporary planning interventions. In this sense, the concept of *place* can be a mediator that enables communication between the various disciplines involved in the protection and regeneration of industrial heritage, of which the most important are: architecture, urban planning, psychology, sociology and cultural studies.

4 Industrial heritage in plans and projects: case study Belgrade`s riverfronts

Industrial zone of Belgrade is located along Sava and Danube river banks. It is positioned near historic urban centre and covers a 450 hectare site along the rivers. Although the confluence of Sava and Danube is perceived as the main element of urban identity, the waterfronts were never considered as an integral part of the urban tissue because both rivers represented a great natural danger for built environment, especially until the beginning of the 20th century. Consequently, the major part of the centrally located contact zone is nowadays devastated and neglected, but the reasons for this condition are not just environmental and morphological, but also caused by previous planning decisions which imposed infrastructural elements (railroad) and industrial zone along Danube³³.

At the beginning of the 20th century Belgrade had 29 industrial facilities while in 1941 before the Kingdom of Yugoslavia entered World War II, there were 206 registered industrial facilities i.e. seven times as many³⁴. The majority of industrial facilities were located in the

27 Boulding, K.(1961). The Image. Ann Arbor: University of Michigan Press.

28 Ibid. 24

29 Ibid. 25

30 Hayden, D.(1995). The Power of Place: Urban Landscapes as Public History, Cambridge: MIT Press.

31 Ibid. 22

32 Boyer, M. C.(1994). The City of Collective Memory, Its Historical Imagery and Architectural Entertainments.

33 Đukić, A., & Vaništa, L. E.(2014). Reuse of industrial zone along the river Danube: visions, plans and projects, International Scientific Conference: 2nd International Conference on Research and Education “Challenges Towards the Future” (ICRAE 2014), Skodra, Albania.

34 Petrović, D.(2006). Istorija industrije Beograda. Razvoj i razmestaj industrije Beograda u XIX i XX veku. (The History of Industry in Belgrade. Development and distribution of industry in Belgrade in 19th and 20th century).

central city zone, along the banks of the Danube and the Sava, while only an insignificant number was oriented toward peripheral city zones. The period immediately after the end of World War II is characterized by a loss of one half of industrial facilities, bringing their total registered number in 1950 to 90³⁵. The establishment of a socialist regime after World War II brought significant novelties to the industrial sector. In addition to processes of planned economy and nationalization, the industrial sector was also formed by the process of homogenization of individual locations and manufacturing facilities, i.e. a process of merging production ensued. The spatial distribution of manufacturing facilities itself remains unchanged, with a higher share of facilities at waterfronts (along Danube). The period of the 1960s is characterized by a constant annual growth of industrial production, of approximately 14%³⁶, with an attempt to relocate manufacturing to suburban zones, within the framework of new homogenization processes for industrial facilities.

The period of the 1970s and 1980s is characterized by a process of relocation of industry from central city zones, but also by the opening of new facilities in the waterfront zone. In this period, the economic sector loses touch with innovations and processes of modernization of industrial facilities. This fact, along with general processes of disintegration, processes of weakening of certain branches of the industry at a global level, contributed to a lower level of productivity and lower level of industrial growth. The period of war activities and sanctions of the 1990s has considerably increased the negative trend in the industrial sector and accelerated processes of degradation and the closing of numerous industrial complexes. Its culmination was the NATO bombing, to a great extent also targeting industrial facilities in Serbia³⁷. This process, as well as a poor strategy of industrial production additionally strengthened market fragmentation. Industrial production dropped by 20%, and the negative trend that started in the 1980s reached its culmination.

The urban development of Belgrade, also targeting waterfronts and their industrial burden, was directed by planning documents and strategies (master plans, spatial plans) which gave their visions of future transformations³⁸. Oriented towards urban growth, the Master plan of Belgrade 2021 and the Spatial Plan of Belgrade anticipated transformation and modernization of the industrial sector, a dislocation of industrial facilities from the central urban areas and the minimal growth of employment. In the Master plan of Belgrade (2003), the issues of culture and identity are emphasized, as well as the imperatives of well-balanced ecological and economic development. Simultaneously, the development of industrial zones is structured around several objectives - revitalization and modernization of existing capacities with the development of new capacities, minimal increase of employment, transformation of industrial facilities into business and housing, removal of industrial buildings from central zones and establishment of sites suitable for a sustainable industrial development³⁹. However, during the last few years, there have been a few successful implementations of plans and projects aiming at rehabilitation and regeneration of industrial areas in the central Belgrade municipalities. Unfortunately, the main obstacle represents the problem of ownership which usually delays or completely cancels the process⁴⁰.

The period after 1990s is characterized by promotion of megaprojects. The problem of mega-projects, reflecting the ambiguities of a contemporary megalomania, could be especially controversial and damaging for space, economy, society and environment⁴¹. These initiatives, allegedly driven by the idea of absolute connectivity/efficiency/mobility⁴²,

Beograd: Srpsko geografsko društvo.

35 Ibid.

36 Ibid.

37 Ibid

38 Đukić, A., Vaništa, L. E., & Vukmirovic, M. (2014). Planning framework, projects, urban competitions and visions for development of Sava Amphetheatre, Izgradnja, Vols. 3-4, (pp. 103-121).

39 Ibid. 34

40 Ibid. 39

41 Stupar, A., & Đukić, A. (2014). Globalizing the Belgrade Waterfront: Megaprojects for a sustainable development?. 50th ISOCARP International Planning Congress— Urban Transformations - City and Water, Gdynia.

42 Flyvbjerg, B., Bruzelius, N., & Rothengatter, W. (2003). Megaprojects and Risk: Anatomy of Ambition. Cam-

have become a new leitmotif, a symbol and a sign of anticipated progress, which often ignores usual planning procedures in order to produce a glamorous image typically created by star-architects. One of the megaprojects for urban regeneration of Belgrade's waterfronts is a Master plan for Port Belgrade. It covers the industrial zone along the Danube's riverfront, which was a key element of urban identity during the end of the 19th and the beginning of the 20th century. The projects related to the left bank of Danube (Marina Dorćol and the Port Belgrade) tend to close down industrial facilities and introduce housing and commercial activities (Figure 2). The main aim of the Port Belgrade project is to activate the great potential of the riverbank and to build a modern urban center as an integral part of the city which will improve the appearance and importance of the location and the entire Belgrade. Variety of districts is one of the objectives of the Master plan. Each district is special depending on its purpose, character and particular identity and has been designed in line with the mixed-use principle.



Fig. 2: Present situation of Danube's waterfront and Liebeskind's project for future development. Source: <http://www.lukabeograd.com>.



Fig. 3: Reconstruction of industrial heritage in Port of Belgrade. Source: <http://www.lukabeograd.com>.

The location of Danube port will be divided into seven basic units (neighborhoods) which will be connected by a linear park of 16 ha. One of the neighbourhoods will be: Industrial heritage (Figure 3), which will contain industrial facilities that represent industrial heritage of great architectural value. With a different purpose, they will be reconstructed and transformed in a new context. A long hall located next to the linear park will be the center of contemporary art and creative industry, whose activities will contribute to dynamic, urban life of the entire city. The front hall close to the river is envisaged as a concert venue and should become a symbol of the port's transformation.

Marina Dorćol is another project located next to the previous one. According to the detail regulatory plan for the central zone of the Marina Dorćol, this zone is set aside for the construction of a city center, with commercial and accompanying features, including sports
 bridge: Cambridge University Press.

objects, nautical center, yacht club, reception, hangar, workshop, etc. “Stari Kran” (old crane) is located on this site. It is an example of industrial architecture from the beginning of the 20th century (Figure 4). It was the crane built in 1932 and belonged to an electrical plant “Power and light”, and it was protected by state as national heritage⁴³. During the 2000 it was an international architectural and urban design competition for regeneration of old marina. The winning project incorporates the old crane as a part of the design solution. The final project also followed these guidelines (Figure 5).



Fig. 4: Old Crane at Marina Dorćol.



Fig. 5: Wining project at International competition which incorporate the existing Old Crane.

Due to their strategic importance for the further development of Belgrade, both sites have been in the public eye for several decades which resulted in a number of plans, projects, national and international competitions, studies and workshops. However, the thorough analyses and evaluations, as well as the created visions and documents, have not been implemented, keeping the ambitious images of foreseen megaprojects in a domain of paper-architecture⁴⁴.

One of the rare examples of successful revitalization of industry facilities in Belgrade`s riverfront is the area of Beton Hala, which was regenerated from warehousing facilities to a mixed – use facility, with cafes, discotheques, restaurants and shops. The Beton Hala is a 330 m long concrete hall, forms a strong presence on the waterfront that cannot be

43 Kulenović, R. (2010). *Industrijsko nasledje Beograda (Industrial Heritage of Belgrade)*. Belgrade: Museum of Science and Technology, Inpress.

44 Ibid. 39

ignored. It is planned as an urban cultural park that hosts international and local exhibitions and events. The architecture is a mix of industrial heritage, integrated within a green landscape against the historic backdrop of the Belgrade Fortress (Figure 6).



Fig. 6: Regeneration of Beton Hala

In 2011, the City of Belgrade launched an international one-stage architectural competition to design the Beton Hala Waterfront Center in Belgrade. The Waterfront Center is envisioned as the principal new access point from the capital's riverfront to its historic core, and a contemporary architectural anchor point for a vibrant pedestrian zone in one of the city's oldest continually inhabited parts. Two projects shared the first prize: The first one was done by local architectural team from Belgrade - atelier Redžić. It offers a simple, but refined complexity. Viewed from Novi Beograd and from the bridge, new spaces underline the skyline of historic Kalemegdan, without competing with its silhouette (Figure 7). Colourful, flowery treatment of the roof enriches the view to the fifth facade, and two functional volumes with high level of flexibility constitute architectural body of the project.



Fig. 7: The winning project for Beton Hala international competition done by arch. Redžić. Source: <http://www.lukabeograd.com>.

The second one was done by Japan atelier Sou Fujimoto Architects. This brave proposal offers an iconic structure which blurs the difference between urban and architectural scales and spaces. Proposed structure competes with historic assemblage of Kalemegdan Hill, offering a new identity icon of 21st century (Figure 8). None of these proposals are implemented until today.



Fig. 8: The winning project – first shared prize – for Beton Hala done by arch. Fujimoto. Source: <http://www.lukabeograd.com>.

Another successful example of regeneration of industrial zone along a riverfront is artistic district SOHO BG, which was given to international affirmed artists. Adaptive re-use of former “Srbijatex” building has been done in 2010. The quarter was inspired by SoHo districts in London and New York and has potentials to grow into the most exclusive city parts, rich in cultural and artistic contents.

Concrete Silos for wheat from 1955, which belonged to the company “Zitomlin” is another abounded industrial facility. It is a landmark of Dorćol area and presents a symbol of an industrial period. The area around the Silos was used as an attractive location for international multy-disciplinary festival „Mikser“in 2011. During the “Mikser” festival there were projections on them, followed with a several artistic installations, exhibitions and cultural events (Figure 9).



Fig. 9: Projection on Silos during the Mikser festival.

5 Conclusion

The industrial heritage represents important element and generator of contemporary identity of the cities. It is a segment of cultural heritage and constructive element of cultural identity. Social, cultural, historical and architectural values make it significant in formation of

cultural identity of the community. In projects and plans of urban regeneration these values, as active components of material culture and urban memory of citizens, are very often neglected which leads to permanent destruction of the cultural, natural and architectural heritage and urban identity. The reason for this is lack of understanding of the multitude of tangible and intangible values that abandoned industrial sites possess and messages they carry, as well as the lack of appropriate planning tools for identifying and analysing these values.

This research is concerned with a problem and importance of preservation of industrial heritage identity in context of contemporary strategies of urban regeneration. The main aim was to draw attention to the complexity of identity of industrial heritage and to propose a conceptual framework for identifying and investigating identity attributes of industrial heritage sites that are valuable to preserve. Therefore, this paper advocates for place-based approach to the regeneration of industrial heritage, and its implication to preservation of identity of this sites and creation of sustainable solutions. The concept of place was proposed as a theoretical framework for exploring identity components of industrial heritage sites through built and natural setting, former or present site activities and site meanings as a property of human intention and experience. This concept in a comprehensive way includes intangible values of industrial heritage which are related to the experience of sites, as well as tangible, which are related to the specifics of the physical features of industrial heritage that affect the experience. In practical terms, the proposed framework can contribute to decision making in the initial phase of planning the regeneration of industrial heritage.

Second part of paper deals with identity of cultural heritage in Serbia and its treatment in urban design competitions and megaprojects in Belgrade. The industrial heritage in Serbia represents a part of European heritage and memory since great number of industrial buildings was built by architects from different European countries and the typology of its building are similar with European one, although the specific local elements could be noticed. Specific value of industrial heritage in Serbia is in a fact that the most of the structures were built at the beginning of the 20th century, almost a century later than in other countries in Europe, in order to support development of a new society and to speed the urbanization of its towns and cities.

Process of revitalization of industrial heritage in Serbia is in its initial phase. The Industrial Heritage Protection Service in Serbia was formed quite late, comparing with other European countries, in 2001 within the existing Department for Protection. It was formed for the systematic protection of scientific and technological industrial heritage. Belgrade is a city with rich and diverse industrial heritage, especially along its riverfronts, that could be successfully included in contemporary life. During the last twenty years Belgrade's riverfronts have been focus of planners and architects as well as politicians, which resulted in series of urban plans, projects and design competitions, some of which are part of two planned urban megaprojects: "Danube port" and "Belgrade on water". Analysis of selected projects in this paper showed that envisaged urban interventions lead to the partial or complete loss of identity of industrial heritage which is reflected through the negation of the existing urban pattern, silhouette of old city, hierarchy of urban rappers, and connection with the existing urban fabric.

Beside the identity issue, lessons learned from the projects, competitions and realization of revitalization of industrial heritage are:

1. Safe and steady financial framework is required for successful implementation of plans and such projects. Good European practice shows that support of European funds is necessary for successful realization of projects in the field of industrial heritage revitalization;
2. Implementation of legislation laws should be strictly observed as a priority. Harmonization of existing standards and regulations with those which are already accepted all over the Europe is necessary;

3. It is necessary to build integrative approach to the field of industrial heritage regarding to its revitalization and provide links between different sectors;
4. The private sector must be stimulated to take incentives in terms of tax cuts;
5. Small scale initiatives are sometimes more effective than large scale investments;
6. Lack of strategy as well as political and cultural vision in term of protection, as well as non-regulated ownership relations, could be the main obstacle in revitalization of industrial heritage;
7. Projects of revitalization of industrial heritage represent opportunity for cultural tourism.

Some results show that imbalance between ambitions of the city and current economic capabilities are one of the main problems for implementations of the plans and projects in Serbia. These lessons and recommendations could serve as the basis for addressing these issues and defining strategies of urban regeneration.