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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



Ironworks Jesenice. Photo: Sonja Ifko.

## Industrial Legacy of Electric Powerplants in Bosnia and Herzegovina

### Summary

*The Industrial revolution has had a significant impact on the formation of social and spatial circumstances of our present day life. In the context of Bosnia and Herzegovina intense industrialization in the 19th century, brought by Austro-Hungarian Empire, shaped the urban morphology of cities, countryside and lifestyle. The most visible changes were connected to railroad, industrial coal and wood processing complexes, but one that will bring about most of the changes and still have an impact is related to the use of water, from earliest times in form of dams and watermills (in case of Sarajevo at the centre of historic core), and in industrialization hydro and steam power stations. The production of electricity caused changes in landscape due to artificial lakes, light up the cities in Bosnia and Herzegovina and introduced the early form of public transport by tram that still shapes the urban morphology of Sarajevo. Water is a basic subject matter of many analyses, and it is considered a principal existential and vital generator of the formation, sustainability and transformation of different types of cities.*

*The legacy has maintained until today since one of the major industries and export is the electric power. Several of these early plants are located in current urban areas, neglected and unused. It will be necessary to find adequate restoration and revitalization methods that will deal with the preservation of the physical aspects, and its immeasurable legacy not manifested only in these historic buildings but as a symbol as Tesla said at the speech at the opening ceremony of Niagara Falls Plant "(...) a true monument of enlightenment and peace (...)".*

*Industrial complexes and its architecture are a specific form of heritage. One can commonly associate heritage with aesthetically pleasing buildings, but industrial heritage is more ambiguous - in some instances it is seen as powerful creative force but partly disruptive or destructive at the same time.*

*The restoration process needs to be interactive, programmatic and progressive in order to represent the spirit of innovation and progress brought to them.*

### 1 Introduction – industrialization in Bosnia and Herzegovina

Industrial revolution, through almost two centuries, has had a crucial impact on formation of social and spatial ambient as we see it today. By the late XVIII century, in Europe, changes that were brought about continued in XIX century and in case of Bosnia and Herzegovina even in the first half of XX century. Even though the industrialization process started quite late (with the arrival of Austro-Hungarian empire 1878) it has been a major force in shaping of urban morphology, organization of urban structures and enhancements in the quality of life for local inhabitants. It was the beginning of modernization, and reshaping the cities according to central European model after four centuries of oriental Balkan and Islamic principles<sup>1</sup>.

The process of modernization was accompanied by development of traffic conditions

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<sup>1</sup> Hadžibegović, I. (2004). Bosanskohercegovački gradovi na razmeđu 19. i 20. stoljeća. Sarajevo: Institut za istoriju.

especially railroads, connecting cities and industrial complexes, by major rise of economic activity, changes of social context, as well as administrative, military and cultural functions throughout cities of Bosnia. Alongside commercial and industrial development, local crafts were preserved also and will be a supportive economic activity until the World War II. Other significant changes occurred with the building the electric power facilities (dams, power plants) and electrification network, followed by phone and telegraph. Existing cities were modernized, and new cities were built in major mining shafts, sawmills or healing spa water and based their existence on exploitation of these natural resources. This is still highly visible in traffic infrastructure and landscape that was changed through building artificial lakes. Development of industry had a profound effect as a catalyst for modernization, and most comprehensive growth was seen in cities that were political, administrative, military and cultural centres.

Most representative case study for Bosnia and Herzegovina is its first hydro power plant near Jajce constructed in 1899. It was the largest power plant in central and southern Europe, constructed only two years after the famous Niagara Falls Tesla-Westinghouse from 1897. Others followed soon, thus providing a large extent of electrification for the entire country. During 1888-1917 in Bosnia and Herzegovina one thermal (coal based) and four electric power plants were built. Jajce hydropower plant was producing the largest amount of electricity at the time in Central and southern Europe 7 MW.<sup>2</sup> It was built to serve a factory that produced calcium carbide. In the year 1917, the owner of „Elektrizitäts A.G.“, dr Alexander Wacker, sold its stake in the plant and factory to concern „Dynamit Nobel, A.G.“ After such glorious past the plant was used until the WWII, and later on it became an industrial site for ferrum-silicium production. The original buildings were removed, and new socialist-type factory was placed at the site. It was one of largest employers in the region but also a major pollutant. Currently there is some production at the site, but the area seems like a scene for apocalyptic movies, and the level of pollution of river and soil is quite high. Industrialization demonstrated its dual nature as generator of development and as a destructive force.

It is rather difficult to assess the future of the complex, after the production ceases, parts of it should be preserved in order to maintain the memory of place, and it can be an industrial park (after decontamination) since the natural surrounding is stunning (Figure 1: a, b).



**Fig. 1:** a) Photograph of the Industrial complex at the beginning of XX century, b) Photograph of existing condition with ruins of historic objects, and factory complex of socialist.

In a country that today has barely any industry, there are several complexes placed in city centres that serve as a reminder of the idea of progress and modernization. Ever since the loss of their original function these complexes are under threat of partial or total demolition, and it seems necessary to explore the possibilities of their adaptation, re-use or integration of new development with the existing structures. This is a process that requires

<sup>2</sup> Hoernes, Dr. M. (1904). Neunter Band: „Wissenschaftliche Mitteilungen aus Bosnien und der Herzegowina. Herausgegeben vom Bosnisch-Herzegowinischen Landesmuseum in Sarajevo; Mit einem Bildnisse Benjamins von Kallay, 97 Tafeln und 308 Abbildungen im Texte“. Wien: Commission bei Carl Gerold's Sohn, Tafel IV.

an interactive approach, with an accent on functional solutions with clear programme that can encompass a need for preservation of such monuments not only as physical structures but as witnesses to a great period of transition into modernity.

Profound changes throughout the country occurred in its urban and natural landscape. Most of the traditional hydropower plants use large artificial lakes and dams to collect the water necessary for its operation. This not only causes the visual changes, it is also reflected in microclimate (more dampness) and changes in flora and fauna. Bosnia and Herzegovina uses the hydropower to a large extent, according to data from electric distribution company the figure is just above 30%. It is one of the rare statistical data that puts the country way ahead the rest of Europe. The only country with similar output of hydropower is Norway with 32%<sup>3</sup> with other European countries well below the 10%.

Even though it is considered clean and renewable it does come with a certain price tag. With the above mentioned changes, parts of urban or heritage structures are submerged (Figure 2: a, b) as shown here in the example of Jablanica artificial lake.



**Fig. 2:** a) Riverbed of Neretva river, photograph taken during maintenance and cleaning in 2011, showing the extent of changes in natural landscape; b) Photos of submerged historic cemetery in Neretva valley.

With this purpose, the paper presents complexes of use of hydro and steam power in Sarajevo: Marijin Dvor, Hrid and Bentbaša in Sarajevo and elements of strategies of their active protection and integration into urban currents as most important artefacts of industrial heritage. By their rehabilitation (through different means) they must transcend the limitations of classical notion of preservation but rather once again be a generator of positive spatial transformation through their legacy.

## 2 Sarajevo during Austro-Hungarian times

Occupation of Bosnia and Herzegovina by the Austro-Hungarian monarchy and the introduction of capitalist economic principles, deeply affected the urban image of Sarajevo, which was a typical feudal city up to that point. New administrative division established seven municipalities of Sarajevo, and the spatial organization from the ottoman times that consisted of strict division between business district and residential districts ceased to be the primary urban system. Arrival of Austro-Hungarian government meant the meeting and collision of two opposite civilizations and this is reflected in the urban matrix of the city. Geographic position of the city as a cross road between trade routes leading through valleys of Drina (eastern route), Bosnia (northern route) and Neretva (southern route), as well as its historical significance contributed to the reasons for Sarajevo to be the capital of Bosnia and Herzegovina. New authorities, kept most of the administrative infrastructure from the ottomans, changing their formal titles (Figure 3).

In this historical phase of development, spatial genesis is earmarked by spreading of the

<sup>3</sup> [http://ec.europa.eu/eurostat/statisticsexplained/index.php/File:Share\\_of\\_renewables\\_in\\_gross\\_inland\\_energy\\_consumption,\\_2013\\_\(%25\)\\_YB15.png](http://ec.europa.eu/eurostat/statisticsexplained/index.php/File:Share_of_renewables_in_gross_inland_energy_consumption,_2013_(%25)_YB15.png).

city towards west and north towards larger plains of so called Sarajevo field. Public objects and facilities are built within the city such as town hall, Banks, Post office, Museum, Theatre and new residential areas. On the left river bank are industrial complexes such as tobacco factory, brewery, slaughterhouse. To the north new streets lead to brickmaking industrial complex with new residential quarters have attracted new comers into the city as well as a large number of foreigners.<sup>4</sup> What was essential to the city a large upgrade of communal infrastructure was made: water supply, sewage canals, regulation of the river banks for flood season, gas and electrification continued to grow and the first electric tramway route was established along the longitudinal line of Miljacka river and the main street (Figure 4). Linear presence of water within Sarajevo directly determines the form of the relevant city, or more precisely, it determines a recognizable geometric appearance of the physical structures. In this manner, it gives a specific particularity to authentic urban identity by means of numerous expressions of individual and collective morphological units, combined within a synthesis as an urban landscape with presence of a certain form. Endeavours to treat water as an ever-lasting, irreplaceable and essential resource of human existence, within the context of its qualitative (existential and formative) usage, are seen in its influence on the city geometry<sup>5</sup>.

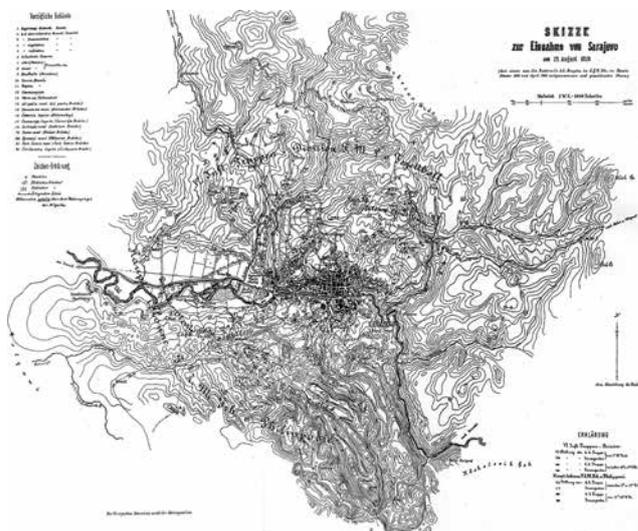


Fig. 3: Sarajevo urban core during the Austro-Hungarian rule, 1878.

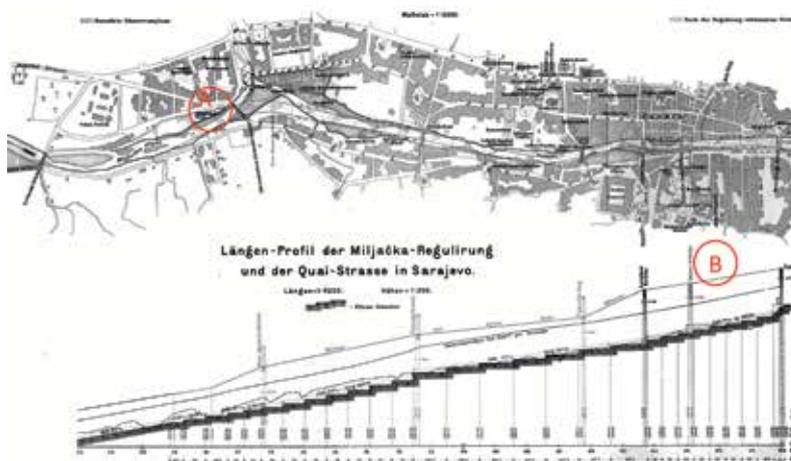


Fig. 4: Plan of river banks regulation and profile of the river incline form east to west with a growing number of public buildings built alongside, map from 1879.

4 Žuljić, V., Čengić, N. & Čakarić, J. (2015). Sarajevo metropola – model razvoja. Sarajevo: Arhitektonski fakultet, Acta Architectonica et Urbanistica.

5 Čakarić, J. (2010). Water phenomenon: Urban morphology transformation. In Facta Universitatis - series: Architecture and Civil Engineering, Vol. 8, No 4 (pp. 375-388). Niš: University of Niš.

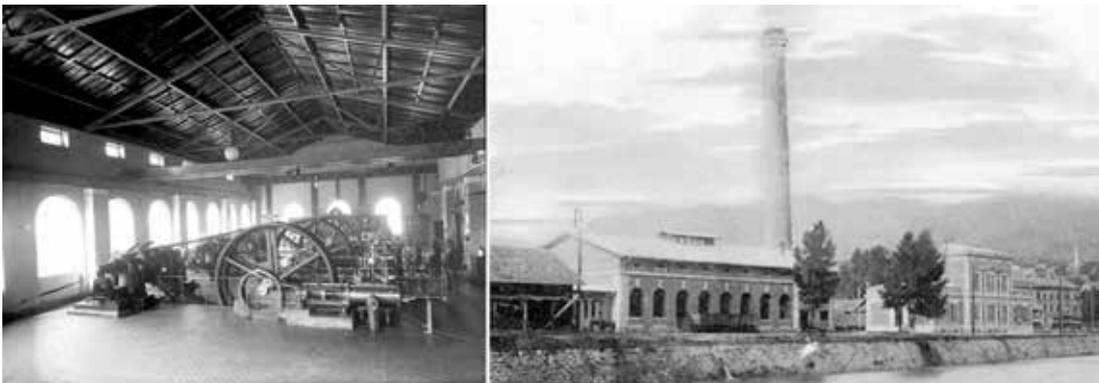
By the end of XIX century Sarajevo has once again spread its western and norther borders. For the head department of railroads, a new workshop and coal burning facilities were built generating the existence of another residential neighbourhood that became a part of the city quite soon. For the needs of the main national hospital on its northern boundary another 10 parcels were included so the hospital was able to gain plots for building clinics and departments. This was the final urban spreading of the city in Austro-Hungarian period, and the urban structure was now infilled with all functions and facilities needed in a modern city, Sarajevo has reached the number of 60 000 inhabitants and covered 13 km<sup>2</sup> <sup>6</sup>.

## 2.1 Industrial heritage of Sarajevo during Austro-Hungarian empire

As emphasized in the introduction, industrialization begun late XIX century and most comprehensive transformation and modernization occurred within largest urban centres of Bosnia and Herzegovina. This is particularly visible in Sarajevo, as the capital of new province that had major infrastructural, public and residential development. The paper will emphasize and show complexes connected to the idea of industrial progress – electric power plants, whose endangerment as historical heritage is painfully evident, and propose the strategies for their development, reuse and inclusion into contemporary urban flow.

### Electric power plant in Marijin Dvor

First electric power plant in Sarajevo was constructed in 1894 by german company “Siemens und Halske”, only thirteen years after the New York power plant. Sarajevo benefited early on with this through electrification of main streets, public objects, some residential and by introduction of public transport electric tramway. The structure of power plant built alongside right river bank with dominant horizontal form typical for industrial buildings, but dressed in façade elements that carry the architectural code of the surrounding buildings of central european (in this case neo-classical) style, as well as a part of the othogonal scheme urban matrix consistent with the austro-hungarian period in Sarajevo (Figure 4, position A and Figure 5: a, b).



**Fig. 5:** a) Electric power plant on Marijin Dvor shows great consideration towards the urban city context – skilfully shaped in harmonius horizontal and vertical accents; b) Original turbines and equipment shown on an archive photo here, not existing in situ today.

The architectural form of the object is directly derived from its basic simple form of industrial structure, with thick brick walls and one of early types of iron truss girders. The building is than dressed in order to maintain the continuity of the streetscape, in one of neo-historical styles. This façade has a sort of late renaissance, neoclassical elements with repetition of arches with accented keystone. The chimney (photographs are a bit vague) was

<sup>6</sup> Skarić, V. (1937). Sarajevo i njegova okolina od najstarijih vremena do austro-ugarske okupacije. Sarajevo: Izdanje opštine grada Sarajeva, Bosanska pošta, Josip Bretler.

sleek and ornamented at the top, also in order to blend with its urban location.

The entire ensemble is defined by the longitudinal position along Miljacka river bank and the object form that follows the space, and a single vertical accent (a chimney) that is almost a reminder that this is an industrial object. The inherited urban identity of the surroundings, its inconsistency, lack of vision and individual integrities (focal points) contribute to an overall incoherent urban situation. Historic centres have a tendency of cohesion of space by integral factors, and this can be verified by “reading” the urban matrix of Sarajevo, or even the adjacent surroundings of this power plant in which the river separates two systems – central European on the right bank and individual scattered “neutral” on the left side of the riverbank.

It is on this phenomena, that one expects a contribution to creative thinking about resolution of this context with the power plant as its focal point, that should produce a new cohesion between existing and recently built structures and its inclusion in the urban currents of the city.

Current devastation (Figure 6: a, b) of the electric power plant on Marijin Dvor, as well as its surrounding demands careful consideration and comprehensive urban transformation, with preservation of most important features of memory of place through physical and functional means. It is necessary to identify existing condition as an ensemble, elements, details and to recognize urban critical points potential focal and conflict points.

The object is declared a national monument and according to the document its main value is symbolical and documentary, but also calls for partial restoration of the outer shell of the structure. The desired function would be (or at least a part of the structure) some form of technical museum with strong memory of the past, containing contemporary, ecological version of power generator. New additions are allowed since this is a premium location, but in a manner that will not be overbearing to the urban coherence of the entire area. Also a vertical landmark is desirable as a link to the pre-existing chimney.



Fig. 6: a) and b) Current devastation of the electric power plant on Marijin Dvor.

Current devastated condition is partly due to the fact that the site is one of real estate most attractive and expensive points in Sarajevo, so there are several particular (mostly private) interests for the site as new commercial development, without getting involved into deeper problems or resolutions for the urban ensemble.

#### Electric power plant Hrid

Electric power plan on Dudin Hrid (Figure 4, position B and Figure 7: a, b), built in 1917 is one of the rare examples of such industrial heritage with all of its original equipment (made by Siemens) still intact. This is why the structure was declared a National monument in 2009. This complex uses the water from the surrounding mountains, precisely from sources in Jahorina, with pipes up to 25 kilometres long, it is unique since it served a dual purpose

of power plant and water supply facility for Sarajevo. The complex consists of main object of electric plant together with turbines and all original equipment from the beginning of XX century, residential object and adjacent infrastructure (both for the power plant and water supply system). Main values of the object are in its authenticity and integrity as well as the fact that it fully preserved with tools. Architectural features of the main façade are with elements of secession, with large windows and a tympanum like roof plane<sup>7</sup>.

The complex is located in a natural landscape and is surrounded by individual housing objects that do not affect the monument. There is a proposal to turn this facility into a small technical museum, some additional building can be allowed to accommodate the function but the object must remain in the focus and fully preserved.



Fig. 7: a) Electric power plant on Dudin Hrid; b) Original equipment from the beginning of XX century.

The proposal for this industrial complex is a small museum of electrical power development in Bosnia and Herzegovina and restoration and maintenance of the entire complex with its infrastructure. The Electric generators and water supply system have no more practical use, but parts can be easily repaired and restarted for museum and educational purposes.

#### Bentbaša dam

The area of Bentbaša dam (Figure 4, position C and Figure 8: a, b), the name itself derives from the Turkish word for dam (bent – means dam). This was the location of Isa beg watermills and first coffee shops, as early as 1590. Isa beg mills worked until 1875 and were located at the place where the very historic core begins. Later on this site a famous swimming place „Da Riva“ 1884 was built, later on “The National bath “opened in 1902.



Fig. 8: a) and b) Bentbaša with oldest coffee shop called Šabanova kafana and bathing area.

<sup>7</sup> Decision of the Commission to protect National monuments of Bosnia and Herzegovina, [http://old.kons.gov.ba/main.php?id\\_struct=6&lang=1&action=view&id=3281](http://old.kons.gov.ba/main.php?id_struct=6&lang=1&action=view&id=3281)

Some form of dam was erected on the site as early as 1462, and a new one on the same place still serves today as a water pooling place that protects the riverbanks during flood periods. The early dam was made out of oak pillars, and it had several unusual bridge structures. First bridge was built from inflated goat bladders, it was replaced by a wooden bridge that also served as a dam, but for wooden logs that were transported from the hills and mountains above Bentbaša. This bridge/dam was used until 1904 when the railroad took over the transport of logs. The new dam was built in 1958, out of steel and had a dual function, to collect the river silt and to form an artificial lake for swimming (Figure 9: a, b). During the recent war the area was temporary used for improvised devices as mini hydroelectric power plant.

This is an important place since shows a deep and multi-layered connection with river Miljacka, that even though today does not seem very impressive, played a key role in urban formation of the city and connects the story of dams, electric power plants and Sarajevo.



Fig. 9: a) Current state of the Bentbaša dam b) Swimming is still practiced but not as wide spread as it used to be

An area rich in historical layers, legends and content today is only a mere shadow of its fulfilled past. Today it is a semi urbane recreation area, without famous functions that made the place thrive. On the other hand, it is a place full of potential, due to its proximity to the historic centre and spatial possibilities for redevelopment. Bentbaša is a natural and cultural place of heritage with strong collective memory of place. The area needs to be fully cultivated as an urban park and recreation area, with facilities that have been there for several hundred years, like cafes on the water with terraces, bathing areas together with contemporary functions for residents and visitors. Historical traces of former objects can be a canvas for storytelling and it is a perfect place for Sarajevo to regain its relationship with the river.

All three examples are connected with urban lifestyle of Sarajevo, and formed a large part of identity even if not obviously visible. Water connects these sites from Hrid (hydropower plant and water supply system), then Bentbaša (with its dam, watermills and war stories of improvised electric production) and finally Marijin Dvor (a steam power plant connected to Miljacka river) and is being transformed into a different kind of stream – an electric current. As Sarajevo becomes more attractive for visitors, this can be a potential next recognizable brand narrative (such as meeting of east and west, starting point of WWI, Winter Olympic games and the recent 1992-1995 war).

### 3 Conclusion

Industrial heritage, as we have seen though this article, carries within notions of progress and development but also of disruption, or even in some cases destruction. Preservation and adaptive re-use of such ensembles is followed with complexities imposed by the sheer scale of structures and inadequate valorisation of their values, not only in case of Bosnia and Herzegovina but also worldwide. One only can for instance look at the example of one of latest inscriptions on UNESCO WHL of Sites of Japan's Meiji Industrial Revolution: Iron

and Steel, Shipbuilding and Coal Mining, inscription in 2015, that is unsettling visually (harsh bare concrete landscape) and historically (slave labour use).

Industrial heritage in Bosnia and Herzegovina has a strong presence, it was one of the most industrialized regions of southeast Europe since late XIX century. This was highly beneficial for the country, built infrastructure, increase in living commodity but it came with a price, especially in the last twenty years since most of these complexes are no longer in use.

For the purpose of presenting industrial heritage of Bosnia and Herzegovina, one of its most prominent and still vital industries is chosen – the one connected with water and electricity. These two amenities are equal with civilization, it was water that shaped our lives and cities in the past and the present is shaped by energy and electricity - they can be regarded almost as basic human rights.

The unique examples presented here from the electric power plant in Jajce, that was one of the earliest and most powerful by output in Europe in late nineteenth century, to the examples in Sarajevo of early electrification and public transport, full scale of issues facing the task of tackling this industrial heritage is palpable.

Sarajevo case studies (Hrid, Bentbaša and Marijin Dvor) stand on the brink between negligence and possibilities. Two of these locations are next primary targets of new investment and development in Sarajevo. Even though current primitive capitalist driven reality is not the bearer of positive transformative processes one must persist upon socially responsible, architecturally and economically sound solutions. By creating new based upon the existing we are adding to the physical, cultural layers of space creating continuity which is one of the primary pillars of urbanity, and carries a large portion of the attraction of investors and potential buyers/consumers of the site.

The approach to the preservation or re-development of industrial heritage can be found within the Historic Urban Landscape approach that includes social and cultural practices and values, economic processes, and the intangible dimensions of heritage as related to diversity and identity. It aims at preserving the quality of human environment and enhancing the productivity of urban spaces. It integrates the goals of urban heritage conservation with the goals of social and economic development as a tool to manage physical and social transformation and to promote harmonious integration of contemporary interventions<sup>8</sup>.

Re-valorisation of industrial heritage must be beyond its architectural features, and open to rough industrial aesthetic of structures, especially since its importance did not arrive from the physical structures but rather from processes that took place inside. It is this active approach that is needed to revive the sites, not just mere physical reinstatement but a way to revive in a contemporary manner the processes that allowed the city to thrive.

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<sup>8</sup> [http://portal.unesco.org/en/ev.phpURL\\_ID=48857&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.phpURL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html). [http://portal.unesco.org/en/ev.phpURL\\_ID=48857&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.phpURL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html).