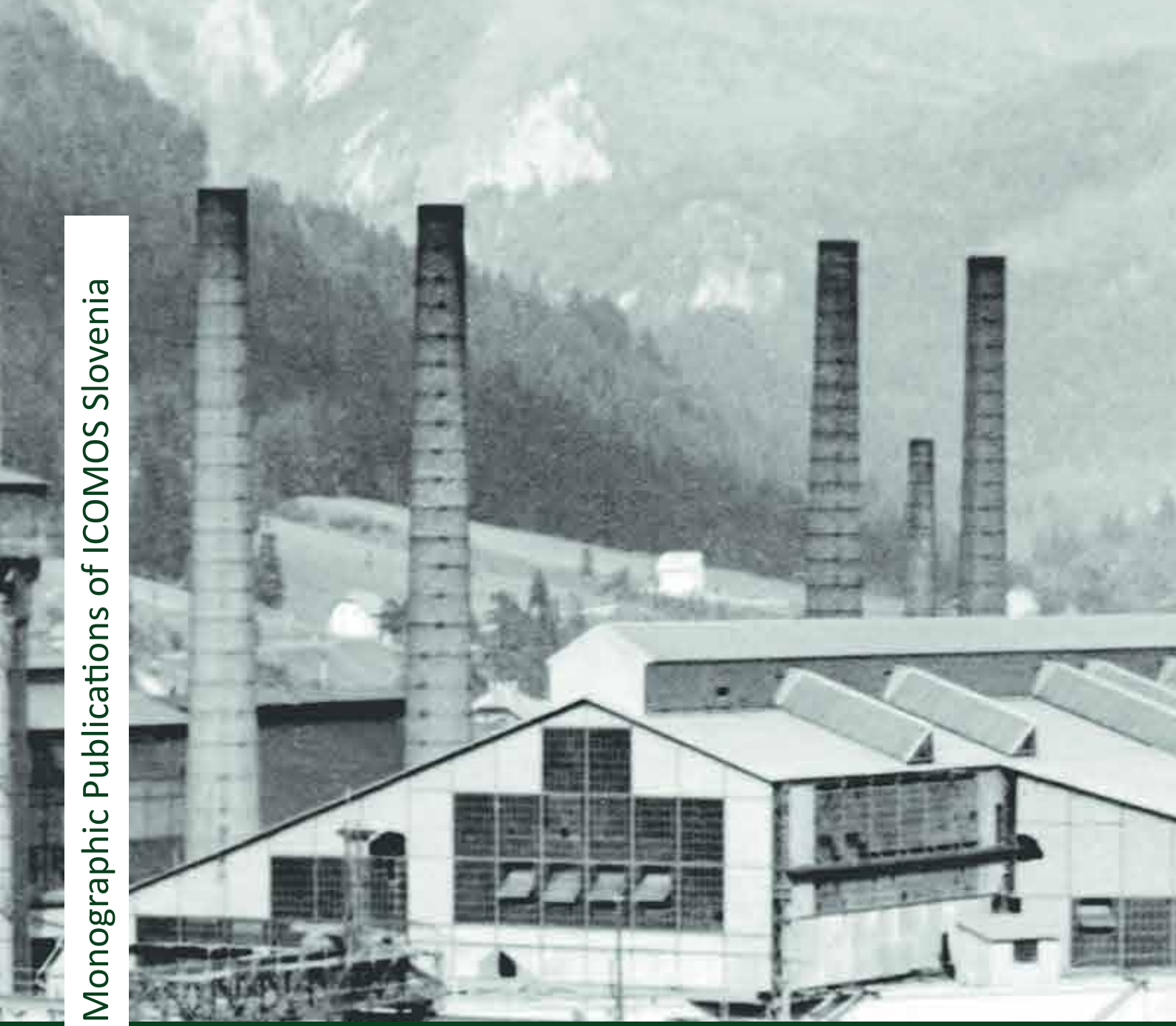

Monographic Publications of ICOMOS Slovenia

02

Monographic Publication of ICOMOS Slovenia

# 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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 Front page photo: Jesenice ironworks in 1938, Gornjesavski muzej Jesenice.

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# Content

# 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 heraitage: 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 SIovenia 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 extend 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

# Review

Several decades after deindustrialization has become a global phenomenon and the term industrial archaeology accepted by experts and the public, the theme of industrial heritage and its valuation is still current, perhaps the most effective in the protection of cultural heritage. International symposium held from 1 to 3 October 2015 at Bled in Slovenia, has gathered experts from several European countries and this monographic publication is its permanent result. The monograph contains 11 texts of authors from Bosnia and Herzegovina, Croatia, Ireland, Kosovo, Montenegro, Slovenia, Serbia and the United Kingdom.

A number of theoretical and practical topics have been presented as well as case studies, positive and negative. There are three main focuses that authors deal with: Legal, Administrative and Professional Challenges, Authenticity and Integrity in Reuse Processes and Management of Industrial Heritage: Experiences and Examples.

Nevertheless, the under-representation of the industrial and technical heritage on the World List is still present. Hard attainable categories - authenticity and integrity, remain a permanent problem of this, in many respects, the most complex heritage. The scope of the phenomenon, the profound influence on space and society, the specific character and aesthetics, have also influenced the change of traditional valuation criteria at all levels.

It is in our human nature that we become aware of the true values of something only when we lose it. How our post-industrial time passes, we become more aware of the values of the former working and productive Europe, its industries, factories and plants that have formed face and spirit of our cities and places. This collection of texts presents a contribution to preserve the image of such Europe for the future.

Dr. Nana Palinić

Gunpowder factory KIK Kamnik. Photo: Sonja Ifko.

Robert Pickard

# The Council of Europe and the Industrial Heritage: A UK exemplar of the rehabilitated industrial heritage as a resource for society


## Summary

*This paper commences with a background of Council of Europe initiatives concerning the industrial heritage with particular reference to Western European countries from the mid 1980s to 1990, including an intergovernmental work programme and recommendations of the Committee of Ministers on industrial towns and on industrial heritage, and an international conference on heritage-led town regeneration. These highlighted the potential of industrial buildings for rehabilitation, as assets for reuse and development, as well as policy guidelines proposed for the regeneration of industrial environments. A number of UK examples were cited in this context including Dean Clough Mills, Gloucester Dock Warehouses, Ebley Mill and Battersea Power Station, which will be identified.*

*Since the mid 1980s much has been achieved in terms of the safeguarding and rehabilitating the industrial heritage in Western Europe. Parliamentary Assembly (PACE) documents of 2011 and 2013 cited good practice in Germany Austria, Belgium, Netherlands and the UK. However, a PACE report and resolution on the Industrial Heritage in Europe of 2013 identified a different situation in the former communist countries and called for action to conserve this heritage by conversion to new sustainable uses, drawing on case studies and examples from elsewhere.*

*The paper uses the UK as an exemplar by examining the situation and policy on the industrial heritage at risk, including marketing and awareness issues; the protection industrial sites; redundant (vacant) industrial buildings and how to protect or use them on temporary basis; constructive conservation (the protection and adaptation of historic buildings and places through actively managing change by working collaboratively with owners, architects and developers to develop proposals for sustainable and creative uses); guidance for developers; the role of non-profit organisations (where there is no apparent commercial solution); and outstanding problems. Different types of industrial buildings converted to commercial, residential and cultural uses will be examined.*


## 1 Introduction: Council of Europe initiatives

A number of Council of Europe documents have highlighted the industrial heritage as a potential resource for society.

Within the 1981 – 1986 Medium Term Plan of the Council of Europe, one objectives of the intergovernmental work programme was devoted to the protection and enhancement of the industrial heritage. In this context, two studies were commenced in 1983 (the first, relating to northern Europe was published in a report of 1985) with the aim of drawing a compendium on the industrial heritage situation in Europe and proposals for future action in this field[1]. In this report the concept of "industrial archaeology" was examined referring to the need to research and preserve the industrial heritage, including through on-site

1 Council of Europe (1985) Situation of the technical and industrial built heritage in Europe, Architectural Heritage: Reports and Studies 3. Available online: http://www.coe.int/t/dg4/cultureheritage/heritage/resources/Publications/Pat_PA_03_en.pdf

preservation as an archaeological resource and also through adaptive reuse of industrial buildings through conversion of an existing industrial building into a new function. The distinction between the archaeological and architectural nature of the industrial heritage was highlighted in the second Conference on Ministers, following on from the opening for signature of the Convention for the Protection of the Architectural Heritage of Europe[2] in Granada, which referred to the need to extend the categories of architectural heritage assets for protection, including the industrial heritage, in its second resolution[3].

In 1987, a Recommendation No. R (87) 24 on *European industrial towns*[4] highlighted the fact that industrial towns have been the cradle of economic growth from which all of Europe has benefitted and called for public authorities to regenerate them in order to create new reasons for their citizens and enterprises to want to live and work in them, as well as to invest in and demonstrate a commitment to locality. It recommended, amongst other matters, that the historic and architectural heritage of industrial towns – particularly from the 19th and 20th century – should be rehabilitated, turning them into assets for reuse and development. In addition, a number of policy guidelines were proposed including the regeneration of industrial environments and improved policy co-ordination, public sector management and integrated approaches to urban regeneration including new forms of partnership between public and private sectors, innovators and entrepreneurs to encourage initiatives in industrial and commercial development and social and cultural fields by re-use of existing resources (derelict land and the conservation and revitalisation of existing buildings facilities and amenities).

Following on from this an international conference on "Heritage and successful town regeneration" organised by the Council of Europe and others and held in the industrial town of Halifax (UK) in 1988 referred to examples on the industrial heritage in Western Europe (Belgium, France, Germany, Italy, Norway, Portugal, Spain, Switzerland and the UK)[5]. The paper by Richard Butt[6] brought attention to need to recognise the cultural and symbolic importance of certain buildings or groups of buildings which may transcend their architectural or historic value. He compared the situation of many older settlements where a church building provides a visual focus as well as a sense of identity, even for residents who do not worship in it, with industrial towns of more recent origin where civic and industrial buildings provided equivalent beacons, but were under-valued and disappearing following changes in traditional industries making such buildings redundant.

A second key point made by Butt, in line with the resolution of the Conference of Ministers in 1985, was that perceptions of what constitutes heritage were changing at the time, with nineteenth century buildings starting to become more appreciated. Although for many industrial buildings with unhappy historical associations the phrase "dark satanic mills" captured the attitude which many people had. Until the 1980s the demolition of such structures was often seen as the simplest way of making a break with the hard times for people working and living in towns developed from the industrial revolution. However,

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2 Council of Europe (1985) Convention for the Protection of the Architectural Heritage of Europe, Granada, 3 October 1985, CETS 121. Available online: http://conventions.coe.int/Treaty/en/Treaties/Html/121.htm. The Explanatory Report highlights in relation to article 1 that the concept of architectural heritage had been enlarged to include civil engineering works, certain iron constructions and the industrial heritage in its various forms.

3 Council of Europe (1985) Second European Conference of Ministers responsible for the Architectural Heritage (Granada, 3-4 October 1985): Resolution No. 2 on the promotion of the architectural heritage in socio-cultural life and as a factor in the quality of life, part A i: http://www.coe.int/t/dg4/cultureheritage/heritage/Resources/Texts/Conf2_EN.pdf

4 Council of Europe (1987) Recommendation No. R (87) 24 20 of the Committee of Ministers to Member States on European Industrial Towns (Adopted by the Committee of Ministers on 22 October 1987 at the 411th meeting of the Ministers' Deputies). Available online: https://wcd.coe.int/ViewDoc.jsp?id=705473

5 Council of Europe (1989) Heritage and successful town regeneration. International conference organised by the Council of Europe, the Department of the Environment of the United Kingdom and English Heritage, Halifax (United Kingdom), 24-27 October 1988, Architectural heritage
Reports and Studies, No. 14. Available online: http://www.coe.int/t/dg4/cultureheritage/heritage/resources/Publications/Pat_PA_14_en.pdf

6 Butt, R. (1989) Auditing Your Heritage Assets, Ibid. pp. 38 – 42.

many mill and factory buildings were starting to be recognised in a new light as handsome structures and their restoration and reuse a much more satisfactory and symbolic way of launching the economic regeneration of an area. Indeed Recommendation No. R (90)20 *on the protection and conservation of the industrial, technical and civil engineering heritage in Europe*[7] re-emphasised the need for measures to secure its protection and conservation, taking into consideration a series of colloquies organised by the Council of Europe[8], including measures for identification, survey and scientific analysis, to raise public awareness and promote training of specialists and to promote co-operation and intervention at the European level.

Richard Butt also referred to mills, warehouses and all manner of factories as a major heritage "asset" then (mid 1980s) relatively unexploited, which is very much the terminology that Historic England uses today i.e. regarding vacant/redundant heritage property "Heritage Assets" with potential for new or reuse. He highlighted that such buildings are frequently prestigious by virtue of their design and location, relatively cheap to acquire and maintain and, because of the open plan floors in many of them, highly adaptable. Reference was made to four sites in the UK: Dean Clough Mills in Halifax (Fig. 1), Battersea Power Station, London, Gloucester Dock warehouses (Fig. 3) and Ebley Mill in Stroud (Fig. 4) and as being good examples of industrial buildings offering the possibility of being converted to offices, starter units for small businesses, housing, shopping, hotels, and so on.

Since the mid 1980s much has been achieved in terms of the safeguarding and rehabilitating the industrial heritage in Western Europe. A Parliamentary Assembly of the Council of Europe (PACE) document of 2011 cited good practice in Germany Austria, Belgium, Netherlands[9]. A PACE report and resolution on the *Industrial Heritage in Europe* of 2013[10] made further reference to the significance of the industrial heritage being officially recognised by governments from the late 1950s onwards, for example, in the United Kingdom where thousands of sites have been statutorily protected, many hundreds preserved and made accessible to the public, and many more converted sympathetically to other uses. Reference was also made actions taken in the 1970s and 1980s in northern European countries, especially Germany, France, Sweden, Belgium and the Netherlands. Furthermore, in recent years, the successful and continuing expansion of initiatives, such as the European Route of Industrial Heritage (ERIH) has demonstrated the potency of the message.

However, the PACE report identified a different situation in the former communist countries and called for action to conserve this heritage by conversion to new sustainable uses, drawing on case studies and examples from elsewhere. Arising from this the PACE resolution promoted the protection of European industrial heritage, supporting the campaign started by the European Federation of Associations of Industrial and Technical Heritage (E-FAITH) for 2015 to be declared 'European Industrial Heritage Year', which has been given support

7 Council of Europe (1990) Recommendation No. R (90) 20 of the Committee of Ministers to Member States on the Protection and Conservation of the Industrial, Technical and Civil Engineering Heritage in Europe (Adopted by the Committee of Ministers on 13 September 1990 at the 443rd meeting of the Ministers' Deputies). Available online: https://wcd.coe.int/ViewDoc.jsp?id=603209

8 Council of Europe (1987) The industrial heritage: what policies? Architectural Heritage: Reports and Studies 6. Available online: http://www.coe.int/t/dg4/cultureheritage/heritage/resources/Publications/Pat_PA_06_en.pdf; Council of Europe (1988) Mining engineering monuments as a cultural heritage. Architectural Heritage: Reports and Studies 15. Available online: http://www.coe.int/t/dg4/cultureheritage/heritage/resources/Publications/Pat_PA_15_en.pdf; See also reference to 'Recording the Industrial heritage' (Durham, UK).

9 Council of Europe (2011) Destruction or restoration of industrial heritage, Doc. 12677, 30 June 2011, Motion for a resolution presented by Ms Rihter and others

10 Council of Europe (2013): Industrial heritage in Europe, Report: Doc. 13134, 15 February 2013, Committee on Culture, Science, Education and Media, Rapporteur : Ms Ismeta Dervoz, Bosnia and Herzegovina, Group of the European People's Party and Resolution 1924 (2013) Text adopted by the Standing Committee, acting on behalf of the Assembly, on 8 March 2013. Available online: http://assembly.coe.int/nw/xml/XRef/Xref-DocDetails-EN.asp?FileID=19512&lang=EN

by 19 countries and over 130 associations[11] and has recently been spotlighted through the Council of Europe European Heritage Days 2015 initiative[12].

**Fig. 1: Dean Clough Mills (Halifax)** is a complex of 7 factory buildings (some up to 9 levels high) and ancillary buildings which were built in the mid 19 C which became one of the largest carpet factories in the world (one km long with 116,000 $m^2$ of internal space). After years of declining production it closed in 1983. It was then bought by a consortium, led by the entrepreneurs Ernest Hall and Jonathan Silver, who had a visionary idea to develop the Grade II listed site as a centre for business and arts. The complex has business space, including workshop, printing, office, warehousing and distribution space, an 'enterprise campus' with IT services, a conference centre, art galleries and space for 20 working artists, a music venue, a theatre, a restaurant, a hotel, a retail outlet and a day nursery. Overall there are more than 150 businesses employing over 4000 people. This conversion is regarded as a good example of successful urban regeneration. The refurbishment of some of the mills has taken over 20 years, working floor by floor. Industrial blackening has been cleaned from the stone facades (which affected all of the area's older buildings), and exterior changes have been kept to a minimum, while interiors have been adapted to new uses. This has sometimes involved removing floors and cast iron pillars and installing lifts, but the essential character of the buildings has been maintained.

**Fig. 2: Battersea Power Station (London)** is a decommissioned coal-fired power station located on the south bank of the River Thames in London comprising two individual power stations (built in the 1930s and 1950s to an identical design, providing the well known four-chimney iconic structure, in the brick-cathedral style of power station design like Bankside. The station ceased generating electricity in 1983, but has become one of the best known landmarks in the UK and was listed as a heritage site in 1980 and to a higher II* grade in 2007. There have been numerous proposals and attempts to redevelop the site since, and eventually one is now in progress (since 2012), using the Power Station as the central focus of the regenerated 40-acre site, which will include shops, cafes, restaurants, art and leisure facilities, office space and residential accommodation (over 800 homes). The plan includes the restoration of the historic Power Station itself, the creation of a new riverside park and walk and the creation of a new High Street to link to new underground stations. Work commenced on the power station itself in 2013 including the restoration of the art deco structure internally and externally, reconstruction of the chimneys, and refurbishment of the historic cranes and jetty as a new river taxi stop.

11 See: http://www.e-faith.org/home/?q=content/endorsements

12 Council of Europe (2015): Press release - DC112(20015), Directorate of Communications: https://wcd.coe.int/ViewDoc.jsp?id=2352475&Site=DC (Accessed 21.09.2015)

## 2 The situation in the UK since the 1980s

This paper now turns to the situation in the United Kingdom as an exemplar of practice on protection, preservation and re-use of the industrial heritage. The UK, where the industrial revolution commenced in the 18th century, provides a good example of what can be achieved through examples, policies and initiatives. There are now many good examples of rehabilitated and adapted industrial buildings.

**Fig. 3: Gloucester Docks Warehouses and Mills.** The warehouses and mills at Gloucester were mainly built in the period 1840 – 1870 for the storage and processing of imported grain. After a long period of stagnation, in which many of the buildings were threatened with demolition, a period of rehabilitation and regeneration of the warehouses and dock area commenced about 12 years ago and continues today. Many of the former warehouses and mills have now been converted to other uses, including residential apartments and a mix of waterside museums, bars, cafes, restaurants and shopping plus new communal squares, walkways and public art.

**Fig. 4: Ebley Mill (Stroud, Gloucestershire)** is textile mill built between c. 1818 - 1820 to replace an old mill dating from the 14th C. A shortage of capital for investment, competition and the depression in the textile industry caused the mill to close in 1981. In 1986 the local government (Stroud District Council) bought the mill for conversion into new, centralised offices, which opened in 1990. Apart the creation of new offices, one of the key reasons for undertaking this project was to ensure the survival of the most prominent landmark in the district and also to provide an exemplar to show that mills, of which there are many in the area, were capable of conversion to modern use, and could act as a catalyst for other activities.

## 3 Policy for the industrial heritage in the UK

The UK was the first industrial nation and the location of many pioneering industries including iron and textile manufacture, the introduction of the steam engine, and the

construction of canals and railways. This led to enormous social and economic change, the growth of towns and cities. The protected industrial heritage in the UK includes:

- Mines and quarries - coal, lead, tin, copper, stone, etc.
- Power and utilities - gas works, electricity production sites (Fig. 2 and 5), and water and sewage works.
- Processing and manufacture - metal industries, textile mills, glassworks, potteries, factories of all kinds (Fig. 6), chemical production, food (Fig. 7) and drink production (including wind and watermills).
- Transport and communications - roads, bridges, canals and waterways, railways, ports, docks and harbours.

**Fig. 5: Bankside Power Station (London)** was commissioned following a power shortage in 1947 and completed in two phases in 1952 and 1961, but rising fuel prices made the station uneconomic, resulting in its closure in 1981. For many years it was at great risk of being demolished by developers, despite campaigns for the building to be saved and reused. In April 1994 the Tate Gallery in London announced it would be the home for the new Tate Modern gallery. Conversion started in 1995 following the removal of redundant plant and was completed 2000. The main external change is the block two-story glass extension on one half of the roof. Much of the internal structure remains, including the cavernous main turbine hall, which retains the overhead travelling crane. An electrical substation comprising one third of the site remained, but was partly released to the gallery in 2006, allowing the structure to be replaced by a tower extension to the museum, built over the old oil storage tanks, now converted to a performance art space, to be completed in 2015.

The industrial heritage is protected in a number of ways. The two main methods of protection at the national level are through the listing of buildings (of special architectural or historic interest) (LB) or through classifying as scheduled ancient monuments (SAM). There is a preference to list industrial buildings, which can be easier for allowing rehabilitation for new uses (consent can be given by local authorities in most circumstances), whilst scheduling may be more appropriate where revealing the archaeological potential of the site is the desired course of action rather than reuse (consent for change has more scrutiny and is made at the national level).
At a local level, conservation area designation and local listing can offer level of protection by safeguarding against demolition and development activity which could be detrimental to industrial sites.

**Fig. 6: The Wills Building (Newcastle upon Tyne)** was a former cigarette factory built in the Art Deco style in the late 1940s for WD & OH Wills. After the factory closed in 1986 it was listed, but stood empty for a number of years and was in a semi-derelict state at the time of purchase. Various schemes were put forward after many people had called for its reuse, including conversion into a hotel, but its 10 minute location from the city centre meant there was scope for residential use. The rear section of the factory complex was demolished as the buildings were too impregnated with nicotine to be cost-effectively restored. The main building was converted into luxury residential apartments with its exterior carefully restored, it re-opened in 1999. Modern housing was built on the "brownfield" land to the rear, which helped fund the works.


**Fig. 7: Baltic Flour Mill (Gateshead near Newcastle upon Tyne)** is prominent local landmark on the River Tyne. It was built to a late 1930s design and completed in 1950, but closed in 1981. An architectural design competition in the mid-1990s led to a scheme to convert the building into international centre for contemporary art. After ten years in the planning and a capital investment of £50 million (GBP), including £33.4 million from the Arts Council Lottery Fund. BALTIC opened to the public in 2002. The building still contains the grain hoppers which are individually numbered and run almost the whole height of the building.

Of the UK's 23 cultural world heritage sites, 8 are industrial sites protected through a combination of the national and local mechanisms, which reveals the significance of the industrial heritage to the UK. These include: Blaenavon Industrial Landscape (coal and ore mines, quarries, railway system, furnaces, workers' houses from the 19thc); Cornwall and West Devon Mining Landscape (copper mines, engine houses, foundries, new towns, smallholdings, ports and harbours, and ancillary industries 18/19th c.); Derwent Valley Mills (cotton mills from the 18/19th c. and associated workers housing); Ironbridge Gorge (industrial region of the 18th c. including mines, railway lines, blast furnace, and the

world's first bridge constructed of iron); Liverpool – Maritime Mercantile City (pioneering in modern dock technology, transport systems and port management as a major trading centre in the 18/19th c.) (Fig. 8); New Lanark (a model industrial community of early 19th c. including cotton mill buildings, the workers' housing, an educational institute and school); Pontcysyllte Aqueduct and Canal (18 km long feat of civil engineering, completed early 19th c.); and Saltaire (Fig. 9) (industrial village of the second half of the 19th c. with textile mills, public buildings and workers' housing built in a harmonious architectural style).

The National Heritage Protection Plan 2011 - 15 identifies that Industry has had a profound effect on the environment and that historic industrial sites are a vital element the UK's tourist industry, as well as featuring strongly in most urban regeneration and rural land use programmes. It is stated that they offer opportunities for sympathetic new use, but also present challenges in achieving this. There are large numbers of surviving industrial buildings and sites in the UK, but it is nevertheless regarded as important to fully understand the vast range of industrial activities, and to identify what structures and processes are of most significance in the UK's history so that the examples can be recorded, protected and properly managed.

**Fig. 8: Albert Dock Warehouses (Liverpool)** opened for storage of imported goods brought by ships in 1846. It was the first structure in the UK to be built entirely of cast iron, brick and stone. By the turn of the twentieth century only 7% of ships using the Liverpool port were sailing ships and Albert Dock was eventually closed in 1972. The dock's silted up and the warehouses fell derelict. Planning for the dock's regeneration began in 1982 and was completed by 1988. The complex forms part of the Liverpool Maritime Mercantile City world heritage property and the UNESCO inscription details identify the skilful adaptation of the warehouses to new uses, including the Tate Liverpool Art Gallery, Maritime Museum, International Slavery Museum, Beatles Story Museum and bars, restaurants, shops, offices and hotels. Repairs and alterations required to convert the warehouses to the new uses were kept to a minimum and have not significantly affected their authenticity and integrity. It is the largest group of Grade I (highest quality) listed buildings in the UK and is the most visited multi-use attraction in the UK outside of London.

In recent years the programme has focussed annually on different themes, with the industrial heritage being the theme for 2011. The results from this research found that 11% of the listed industrial buildings (grade I and II*) were at risk compared to 3% of listed buildings generally. The research highlighted that only 40% of listed industrial buildings could be put to new sustainable and economic uses, the problem being that many industrial sites contain historic machinery or are redundant engineering structures or mining remains which are difficult to adapt, although many such sites have been saved by local groups as conserved sites in the landscape often with public access or as visitor attractions[13].

13 Milne, R. (2011) Industrial heritage at risk, says new research. Available online: http://www.planningportal.gov.uk/general/news/stories/2011/oct11/201011/201011_5

## 4 Industrial heritage at risk

Heritage at Risk is a national project which commenced 2008[14]. The 'at Risk' strategy commenced in the 1980s by looking at listed buildings at risk - through various threats such as vacancy, partial occupation and disrepair - as a means to focus action (including funding assistance). Since then the current at risk programme has been extended in terms of repairing issues and now covers listed buildings grade I and II* (the top two categories), listed wreck sites (ships etc.), scheduled monuments (relating to the archaeological heritage including some standing industrial sites), registered parks and gardens of historic interest, registered battlefields and conservation areas.

In recent years the programme has focussed annually on different themes, with the industrial heritage being the theme for 2011. The results from this research found that 11% of the listed industrial buildings (grade I and II*) were at risk compared to 3% of listed buildings generally. The research highlighted that only 40% of listed industrial buildings could be put to new sustainable and economic uses, the problem being that many industrial sites contain historic machinery or are redundant engineering structures or mining remains which are difficult to adapt, although many such sites have been saved by local groups as conserved sites in the landscape often with public access or as visitor attractions[15].

**Fig. 9: Salts Mill (Saltaire, West Yorkshire)** is a complete and well-preserved industrial village of the second half of the 19th century built by the philanthropist Titus Salt and was inscribed as a UNESCO world heritage property in 2001. Salts Mill, a textile mill and the largest structure opened in 1853 and was then the largest industrial building in the world by total floor area. It continued in operation until after World War 2, but then progressively declined, finally closing down in 1986. Many of the major buildings became semi-redundant and fell into disrepair, and this had an adverse effect on the entire village. With the formation of the Saltaire Village Society in 1984 serious efforts began to regenerate the entire area. The Mill itself was purchased in 1987 by Jonathan Silver, whose enthusiasm and imagination turned it into a major cultural centre, including an art gallery displaying work by the famous contemporary British artist David Hockney, and a shopping and restaurant complex, maintaining the large open spaces. Some of the original machinery is displayed in the gallery area.

A further research study by Colliers International for English Heritage[16] in 2011[17] identified a

14 What is the Heritage at Risk Programme, Historic England, available online: http://www.historicengland.org.uk/advice/heritage-at-risk/types/

15 Milne, R. (2011) Industrial heritage at risk, says new research. Available online: http://www.planningportal.gov.uk/general/news/stories/2011/oct11/201011/201011_5

16 On 1 April 2015, the Historic Buildings and Monuments Commission for England changed its common name from English Heritage to Historic England and various English Heritage documents referred to in this paper will be re-branded as Historic England in due course.

17 Colliers International (2011) Encouraging Investment in Industrial Heritage at Risk,
Summary Report (1 of 3) October 2011, Prepared for English Heritage, available online: http://content.historic-england.org.uk/content/docs/research/encouraging-investment-industrial-heritage-at-risk-summary.pdf

number of issues that particularly affected industrial buildings at risk:

- Location

The potential for sustainable development of any heritage asset is determined largely by the economic conditions of its location. Industrial structures tend to be concentrated in urban areas where property values are relatively low because the industries that generated them have declined. With industrial buildings there are particular risks such as the fear of contamination, which make it more difficult for developers to secure funding for developing them. Moreover, in general terms major property companies and institutions that invest in property do not tend to invest in former industrial buildings.

- Image

Historic industrial buildings often do not have “market appeal” and can often be regarded negatively by developers. As with other historic buildings, they may be perceived as carrying greater risk compared to new buildings because of uncertainty about hidden or unfamiliar defects, which creates a barrier to investment. Moreover, development projects involving historic industrial buildings tend to encounter unexpected costs and/or delays.

- Adaptability

While many former industrial buildings are flexible, they tend to be less easily adaptable to new uses if they were built to a special form, for a specific purpose which is no longer needed; contain machinery or other fittings which are central to what gives them special interest; or are ruins, beyond repair but protected heritage because they provide important evidence of past activity.

Textile mills (see Figs. 1, 4, 9 and 12) and warehouses (see Figs. 3 and 8) therefore tend to be more easily adapted whereas sites associated with the extractive and chemical industries are particularly problematic because the structures are essentially an envelope to contain the process plant and machinery. Sub-division of mills and warehouses tends to detract from their spatial qualities. Open plan uses, such as offices and studios, are normally preferable, in terms of maintaining their character, to uses that subdivide, notably residential, although sub-division is reversible in the long term and is generally acceptable unless the exposed structure is outstandingly important.

- Entrepreneurial Activity

The most “successful” commercial developments of industrial buildings tend to be by entrepreneurs who have a “vision” for the future use of the buildings. There are many examples in the UK of “creative entrepreneurs” who were driven not just by financial concerns but by a vision of how their industrial buildings could be adapted and used with vitality. Two examples illustrated in this paper are the conversion of Dean Clough Mills by Ernest Hall and Jonathan Silver and Salts Mill by Jonathan Silver (Figs. 1 and 9).

- Historic Industrial Environments

Industrial heritage assets will often form the nucleus of an industrial settlement. The future of the site often depends on the settlement, (although sometimes the building/complex is so large and dominant that the reverse is true). It can sometimes be difficult to find sustainable development for concentrations of former industrial buildings (particularly when market conditions are weak), but such buildings may be important factors in the sustainable future for the place. In such circumstances temporary use and mothballing of redundant industrial buildings may be the best course of action. Indeed, Historic England state the best way to protect a building is to keep it occupied even if the use is on a temporary or partial basis. To help reduce the risks facing empty buildings it has produced

guidance for owners[18].

Another important aspect of the annually updated Heritage at Risk registers, apart from identifying buildings in need of action, is that they provide information for prospective buyers that may be interested in taking action to re-use industrial sites. While very few buildings on the register are for sale, if there is someone particularly interested in a building at risk and would like to find out more, Historic England will provide a contact for each entry on the register. Other organisations also do this in the UK, for example: local authorities, SAVE Britain's Heritage, the Society for the Protection of Ancient Buildings, Historic Environment Scotland and the Ulster Architectural Heritage Society.

## 5 Owning and developing an industrial heritage site

Historic England provides advice to owners and potential developers of industrial sites, whether it be for safeguarding the structure as an standing archaeological remain or if reuse of a redundant industrial building is being contemplated, including how emerging proposals can be taken forward with certainty and the minimum of risk. In this respect, the first advice is to "understand the site" by researching its history as revealed from the fabric of the place, as well as from relevant historic sources, in order to fully understand which parts of the site may or may not be of significance.

For protected sites, relevant consents must be obtained. For those seeking to gain consent for works to listed buildings, they are strongly recommended to seek advice from the relevant local authority conservation officer. Once an understanding has been reached, including by considering aspects of significance, potential new uses can be explored.

Help may also be given to those local authority officials that may deal with the consent applications including through the provision of advice to heritage specialists in the local authority (usually part of the planning department) including guidance on understanding historic buildings, policies and recording practice[19].

Research has shown that many developers are often unaware of the advice and information that is already available from Historic England. It has therefore created a dedicated web section for developers, covering all types of historic sites, including industrial buildings[20]. Moreover, there is an adopted approach of "Constructive Conservation", which is a positive, well-informed and collaborative approach to conservation, using a flexible process of helping people understand their historic environment and using that understanding to manage change. It is based on the principle that protected buildings are "heritage assets", which should be capable of beneficial use. In this context Historic England generally has a supportive view to innovative schemes that protect and enhance the significance of buildings and historic places and will work collaboratively with owners, architects and developers to help them develop proposals for creative uses of historic places. A publication on this theme provides a number of useful and innovative examples that look at the reuse of industrial buildings among other categories[21]. Further information is provided on grant funding possibilities for owners and developers, although there are limited circumstances in which funding is given directly for commercial schemes, with a greater likelihood of support if a building is listed on the Heritage at Risk register. The Heritage Lottery Fund (derived

18 English Heritage (2011): Vacant Historic Buildings: An owner's guide to temporary uses, maintenance and mothballing: http://historicengland.org.uk/images-books/publications/vacanthistoricbuildings/

19 See for example: English Heritage (2008) Understanding Historic Buildings: Policy and Guidance for Local Planning Authorities, http://historicengland.org.uk/images-books/publications/understanding-historic-buildings-policy-and-guidance/; English Heritage (2006) Understanding Historic Buildings, http://historicengland.org.uk/images-books/publications/understanding-historic-buildings/

20 See: http://historicengland.org.uk/services-skills/our-planning-services/support/

21 Christopher Catling (2013) Constructive Conservation: Sustainable Growth for Historic Places, English Heritage, March 2013. Available online: https://content.historicengland.org.uk/images-books/publications/constructive-conservation-sustainable-growth-historic-places/Acc_ConConservation.pdf/

from the national lottery) can support publicly owned buildings or rehabilitation projects to carried out by a charitable organisations (such as a Building Preservation Trust - set up for the good cause of saving heritage resources in the public interest).

## 6 The role of non-profit organisations including building preservation trusts as charitable trusts

For redundant industrial buildings which do not have an apparent and commercially viable solution for re-use, a Building Preservation Trust (BPT) may provide the answer[22].

There are over 200 BPT organisations in the UK, which are specifically dedicated to rescuing historic buildings (a charitable cause in the public interest). As registered charities they are non-profit organisations with tax advantages, and may receive preferential treatment in terms of grant aid funding. They exist in many situations, sometimes set up to rescue a small local building, but more usually operating in a town, county or regional context, with a few larger organisations that will consider buildings across the country. They may have a different approach to a commercial developer, as with tax and funding, they may not need to find a commercially viable solution, particularly if the scheme is to create a working museum. However, in many instances a commercially viable solution is sought by a BPT, but perhaps with a greater chance of original features remaining in tact. Some BPTs sell their rehabilitated projects in order to fund the next project, whilst some may retain ownership and lease the building to create an income to support works on other projects.


**Fig. 10: Richmond Station (North Yorkshire)** The station closed in 1969 (but listed before it closed). The remaining track was lifted and the building lay derelict until the whole site was acquired by the Richmondshire District Council. In 2003 a community-based project to regenerate Richmond Station was approved and led by **Richmondshire Building Preservation Trust**. It was re-opened in 2007, having been successfully converted into a restaurant & café-bar, two screen cinema, art gallery, heritage centre, rooms for public use, food manufacturing, retaining much of its character.

Most BPTs will rely on funding from grants schemes and, in particular the Architectural Heritage Fund, which was set up as a part of the UK's commitment to the European Architectural Heritage year campaign in 1975, provides various grants including Project Viability Grants (up to £3,000 GBP to fund short studies to look at potential uses for a building and at its current condition.), Project Development Grants (up to £25,000 GBP to assist an organisation to cover some of the costs of developing and co-ordinating a project

22 Gould, S (2011) 'Industrial Heritage at Risk', in English Heritage (2011): Saving the Age of Industry, Conservation Bulletin, Issue 67, 19 October 2011, English Heritage: https://content.historicengland.org.uk/images-books/publications/conservation-bulletin-67/cb-67.pdf/

and taking it towards the start of work on site) and “Cold Spot Grants” (up to £5,000 GBP to help with the initial development costs for the repair and reuse of a historic building at risk ) and low-interest loans (usually to help buy a property, with the loan being returned after the project has been completed). The Cold Spot Grant is limited to certain parts of the UK and has a particular focus on industrial heritage buildings anywhere in England. Eligible expenditure may include site surveys (such as structural, archaeological or contamination surveys), specialist advice (e.g. legal, financial), business planning, mentoring by an experienced project manager, project co-ordinator costs and specialist consultants (e.g. economic, tourism, energy efficiency)[23]. BPTs may be able to obtain funding from other sources including other charitable trusts that support “good causes”[24], particularly where training in heritage skills are to be provided through the rehabilitation scheme, and through the Heritage Lottery Fund[25] which support all kinds of projects, as long as they make “a lasting difference for heritage, people and communities”.

Some examples of industrial sites which have been rescued by BPTs in recent years include Richmond Station as a community facility for the town of Richmond (Fig.10), Dewars Lane Granary in the border town of Berwick upon Tweed (Fig. 11) and two projects (Figs. 12 and 13) by the North of England Civic Trust, a civic organisation for public involvement, training and conservation consultancy and building preservation trust.

**Fig. 11: Dewars Lane Granary (Berwick upon Tweed)** an 18th century (1769) granary in use for storing and conditioning grain and, more recently, linseed and grass seed, until 1985. Berwick-upon-Tweed Preservation Trust led a £5 million (GBP) project to restore the building and secure its future as a multi-use facility incorporating exhibition space, a heritage interpretation centre, a bistro, youth hostel and meeting rooms. It opened in 2011. This scheme was cited in the English Heritage Publication entitled “Constructive Conservation”.

## 7 Conclusions: Key lessons

History England has highlighted a number of key lessons for the rehabilitation of industrial heritage sites from case studies. The general consensus is that re-using historic industrial buildings is not without problems. They are often in areas where economic conditions are not favourable and their physical form, which sometimes includes important fixtures and fittings (including plant and machinery), and the situation of their internal spaces, can make

23 See: http://www.ahfund.org.uk/grants.php

24 The Architectural Heritage Fund provides a web search facility for Funds for Historic Buildings: http://www.ffhb.org.uk/

25 See: http://www.hlf.org.uk/looking-funding

them difficult to adapt to new uses. The following key points have been identified:

- There may be a high cost of conversion and decontamination of industrial sites
- Many of the schemes are led by determined individuals with vision
- Mixed use developments are relatively successful
- Industrial buildings are often suitable for small businesses especially creative industries
- The adoption of a minimalist approach often respects the original structure and helps to retain its industrial character and significant features

**Fig. 12: Gayle Mill (North Yorkshire - rural location)** is a 19th century sawmill which has been restored by the North of England Civic Trust and is now open to the public. Gayle Mill, in the Yorkshire Dales National Park, was successively used as a water-powered cotton mill, woollen mill, sawmill and hydroelectric power station. It was eventually rescued and restored by the North of England Civic Trust (NECT) with funding from Heritage Lottery Fund, English Heritage and the Yorkshire Dales National Park Authority. In 2004 the mill won second place in the UK BBC2 television series 'Restoration' and is now managed by the volunteer-led Gayle Mill Trust, but its ownership is retained by NECT.

- Phasing and taking a long view can be important. Some developments take many years to complete
- A change in the wider area may be necessary before a site becomes commercially viable, particularly where an industrial area has suffered economic decline
- A clustering of activities can build up a critical mass which may involve development over a long period of time
- The presence of public sector funding can help to kick start a solution.

Having in mind that industrial heritage is at risk, particularly in the area of South Eastern Europe, and taking into account the relevance of Parliamentary Assembly of the Council of Europe Resolution 1924 (2013) on industrial heritage in Europe and the 10th anniversary of the Faro Convention on the Value of Cultural Heritage for Society (2005), this paper has been directed at examining challenges, dilemmas and examples related to the protection of industrial heritage in the United Kingdom, as an exemplar to promote increased awareness about the values of industrial heritage in contemporary society, including its potential for rehabilitation and reuse, as a contribution to this symposium.

**Fig. 13: Warwick Bridge Corn Mill (Cumbria)** an early 19th C water powered corn mill, significant for its intact machinery and waterwheel (dated 1843) remained in operation until 1989, but has been on the Heritage at Risk Register since 1999 (15 years). The roof has been repaired by the owner but the overall condition is poor. Options for a more comprehensive restoration to secure a sustainable use by the North of England Civic Trust (NECT) are under discussion at the present time. NECT was awarded a grant of £1,379,300 (GBP) from the Heritage Lottery Fund (HLF) in June 2015 towards its ambitious £2 million (GBP) project to bring the building back into operation as a working mill and artisan bakery providing specialist courses in bread-making with associated crafts, and as a resource for learning in connection with the national school curriculum and accredited conservation courses. The building has been bought by NECT for this working project with the assistance of a low interest loan from the Architectural Heritage Fund (set up as part of the UK's contribution to the European Architectural Heritage Year campaign 1975 to assist such rescue projects). Work should commence in late 2015. Had this option not been realised the property has had the benefit of planning permission to convert the building to residential use, but this would have resulted in the loss of the machinery.

Factory TALUM Kidričevo. Photo: Sonja Ifko.

Mirjana Roter-Blagojević, Marko Nikolić

# Dilemmas and Problems in Active Reuse of Belgrade Industrial Architecture - The Case Study of the Sava River Area


## Summary

*Exploration of possibilities of protection, rehabilitation and envision of sustainable strategies for development of industrial areas and buildings are important topics which have dominated in the sphere of theoretical and practical work in the field of protection of industrial heritage in the last decades. The focus is not only on their physical protection but also on the broader issues related to the contemporary reuse as places with cultural and tourism potentials. That is important for urban and economic development of the industrial areas, but that need to be in accordance with preservation of integrity and authenticity of the place.*

*In the last decades, development of Belgrade has had a negative effect with regard to the industrial heritage built in the late 19th and early 20thcentury. The lack of understanding of preservation of elements which possess technological value as evidence of a certain level of development of technological culture as well as intangible heritage connected to the life and labour of workers is observed as the foremost problem. In order to stop this tendency and demonstrate a will to achieve further sustainable development, it is necessary to redefine the approach to the protection of Belgrade industrial zones, creating a new one for urban and spatial planning, taking into account all the values, tradition, authenticity and identity. With provided reconstructions and inadequate changes in the city industrial zones, particularly along the Sava River bank, the historical cityscape, with its characteristic morphology and typology, is gradually fading away.*

*A more active cooperation between Serbia and The International Committee for the Conservation of the Industrial Heritage (TICCIH) as well as the ratification of The Nizhny Tagil Charter for The Industrial Heritage (2003) would definitely contribute to a better approach to the preservation of authenticity and integrity of industrial complexes within their repurpose and changes demanded by new, contemporary features, so that national and local institutions could take upon themselves the obligation to follow certain procedures and approaches in the protection of industrial heritage.*


## 1 Introduction

We can say that industrial buildings and areas in Serbia are today extremely endangered, due to the lack of maintenance, as well as poor economic conditions of local communities. It is obvious that there is a need for a sustainable plan of its preservation and for a definition of a new function through rehabilitation and management plans. Today the central register of cultural properties lists as cultural monument different kinds of industrial, technical and scientific complexes and edifices which are important evidence of development of technical culture and science in Serbia[1]. They prevail in Vojvodina where industrialization started in 18th century developing fast under the Austro-Hungarian monarchy until WWI. In Central Serbia industrialization started from mid-19th century and old capitals Kragujevac and

1 Centralni registar kulturnih dobara, nepokretna kulturna dobra (The central register of cultural properties). Retrieved from official web site of National Institute for the Protection of Cultural Monuments - Belgrade (Republički zavod za zaštitu spomenika kulture – Beograd). http://www.spomenici.heritage.gov.rs/lat/nkd/lista and Republički zavod za zaštitu spomenika kulture. (1998). Spomeničko nasleđe Srbije, nepokretna kulturna dobra od izuzetnog i velikog značaja, Beograd: RZZSK.

Belgrade were dominant[2]. One of the oldest industrial heritages is Aleksander coal pit in Senje Coal Mine near Despotovac from mid-19th century, protected from 1975 as cultural property of great value and an important testimony to the beginning of industrialization in Serbia[3].


**Fig. 1:** The Plan of Belgrade from 1893, made by Bešlić (Source: Belgrade on Maps and Gravures from XVIII to XXI Century, Urbanistički zavod Beograda, Beograd 2010.)

Exploration of possibilities of protection, rehabilitation and envision of sustainable strategies for development of industrial areas and buildings are topics which in recent times are increasingly present in the sphere of theoretical and practical work in the field of protection of industrial heritage in Serbia. Although not yet fully recognised, today is more present an opinion that the industrial heritage could play an important role in future national rehabilitation projects. Within the Regional Programme for Cultural and Natural Heritage in South East Europe (RPSEE) managed by the Council of Europe the Prioritised Intervention List (PIL) in Serbia is defined in 2004, with 12 sites - 3 are a technical heritage (the Senje Coal Mine, the Old Industrial Area in Pančevo (Vojvodina) and the Astronomical Observatory in Zvezdara, Belgrade) - included in the "Ljubljana Process"[4]. The idea is that successful rehabilitation of those sites should crucially strengthen the visibility of the value of cultural and technical heritage for society and its importance for both local and regional development. In realization is the project of reconstruction and restoration of Aleksander coal pit and transformation of the Senje Coal Mine in the echo-museum and regional centre of industrial heritage under support of Europe[5].

2 Kulenović, R. (2010). Industrijsko nasleđe Beograda. Beograd: Muzej nauke I tehnike.

3 Senjski rudnik. Retrieved from official web site of Ministry of Culture and Information, Republic of Serbia. http://www.kultura.gov.rs/cyr/senjski_rudnik

4 The Ministry of Culture and Information, Republic of Serbia. (2008). Prioritised Intervention List, Serbia, European Commission- Council of Europe Joint Programme: Integrated Rehabilitation Project Plan, Survey of the Architectural and Archaeological Heritage (IRPP/SAAH). Belgrade: The Ministry of Culture and Information, Republic of Serbia. Senjski rudnik. Retrieved from official web site of Ministry of Culture and Information, Republic of Serbia. http://www.kultura.gov.rs/cyr/senjski_rudnik

5 Senjski rudnik. Retrieved from official web site of Ministry of Culture and Information, Republic of Serbia. http://www.kultura.gov.rs/cyr/senjski_rudnik

## 2 Urban and architectural development of Sava area

Belgrade is a city on the confluence of two important European and Balkan rivers, the Danube and the Sava, which have the crucial impact on the town historical, cultural and urban development through history. The close relationship between the rivers and the town is the one of main elements of Belgrade specific historical and cultural identity, authentic urban morphology and special cityscape characteristics.

**Fig. 2:** The Kosančićev venac, Sava Port and Concrete Hall (Photo: M.Roter-Blagojević).

The modern urban development of Belgrade in the early 19th century, after establishment of Serbian Principality and partial political autonomy within the Ottoman Empire[6], is connected with fast development of trade and river traffic and establishment of the first manufacturing workshops. And the political and economic centre of the Serbian population was around the church on the Sava Slope – in the area of *Kosančićev venac*, Sava Port and in the new part of town - *New Belgrade* in the *Savamala*. The Sava Port area was outside the fortified city surrounded by the ramparts and a moat. That was the main connection of Belgrade and Serbia with Zemun and the European neighbours. There develop new trade and transit district and trading houses, hotels and warehouses are built. **The Customs Office Building** (*Djumurkana*) was one of the first buildings with European classical architecture.

In the late 19th century area along the river banks developed fast as the trade and traffic area with new trade houses, warehouses and hotels. It showed the new European spirit, liberation and modernization. Many foreign travellers left the testimonials that area was very colourful and vivid. The Sava Port area was the only connection of the town with the Sava River. The south-west area was undeveloped with swamp, called The Venice Pond (*Bara Venecija)*.

After proclamation of the Kingdom of Serbia in 1882 stronger ties with Europe are established, especially with the Austro-Hungarian Monarchy. The foreign capital arrives in Serbia and the first industrial manufactures are built, so that the state has a constant

6 Roter-Blagojević, M. (2015). The modernization and urban transformation of the Belgrade in the 19th and early 20th century. In G. Doytchinov, A. Đukić, I. Catalina, I. (Eds.) Planing Capital Cities: Belgrade, Bucurest, Sofia (pp.20-42). Graz: Verlag der Technischen Universität Graz.

economic growth. This was especially supported by the construction of the railway road (1881-84) and the first railway bridge over the Sava River. The railway has a crucial impact on Serbia's future development and Belgrade becomes a link between Europe and Sofia and Istanbul. The greatest changes are done around the Venice Pond which was dried out and a railway station was built in 1884. On the Danube River the first modern industrial slaughter house was built in 1897-98. The railway road, parallel with the rivers bank, linked new industrial area on the Danube with Railway Bridge on the Sava, cutting the connection between the town and the rivers. **The Railway Station** today stands as proof of the technical and architectural development of Serbia (protected from 1981 and listed as great value from 1983)[7].

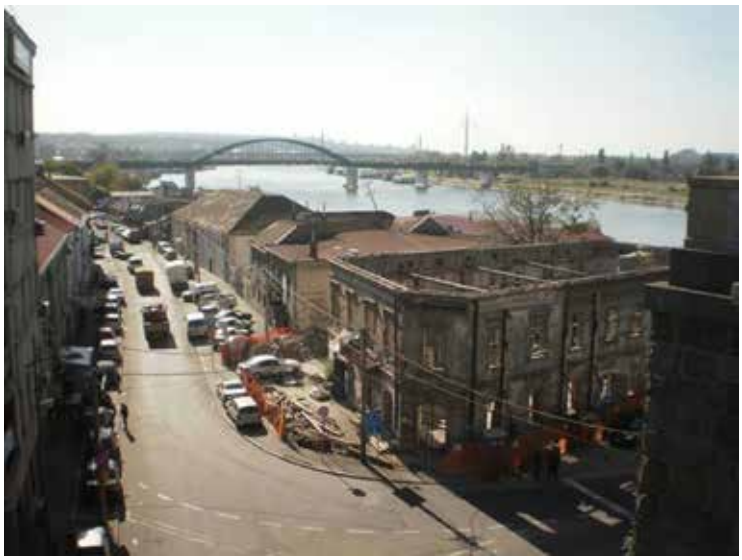

**Fig. 3:** Savamala area, Braće Krsmanovića St., with old buildings. (Photo: M.Roter-Blagojević).

The partial development of some parts of the town continues during the 1880s. The expansion of the city towards the river bank is planned, so that a new structure with the square blocks covers the area between the Railway Station and river banks. But it has not been realized. Today in this area is the Bus Station. New industrial complexes were built outside of the city territory, at the periphery. One of industrial area was on the south-west entrance in the city, at the Mostar, near to the Sava River and a railway bridge.
The Mostar area had many warehouses and production facilities in the late 19th century. Ignjat Weiffert, industrialist from Pančevo, Austro-Hungarian Monarchy, at Mostar began construction of **The First Steam Brewery** in Serbia in 1872. In the period between two world wars, in the Kingdom of SHS, the brewery was famous and had extensive production. After WWII, in socialist Yugoslavia, was called the Belgrade Beer Industry, and in transition period after 1998 transformed in joint-stock company, but lost position and today is bankrupt. The old industrial buildings are not preserved. Only the Weiffert house survived and today is in the process of valuation as cultural property[8].

On the Mostar area, one of main entrances in town from south-west and one of main city communications, going parallel with the Sava River bank, was the railway bridge, and because of that many modern industrial complexes were built there in the early 20th century. **The First Steam Mill** was built in 1902 and was equipped with modern machines. Beside the steam power it had also electric generators and was the first mill in Serbia that introduced electric power in 1912-1913 (listed as cultural property from 1987).Next to the Steam Mill after the WWI, **The State Printing Shop building** was built between 1936 and

7 Katalog nepokretnih kulturnih dobara na području grada Beograda (The Cultural Properties in Belgrade). Retrieved from official web site of Institute for Protection of Cultural Monuments - Belgrade (Zavod za zaštitu spomenika kulture grada Beograda). http://beogradskonasledje.rs/kd/zavod/index.html
8 Ibid.

**Fig. 4:** Old warehouse in Braće Krsmanovića St. (Photo: M.Roter-Blagojević).

**Fig. 5:** The Mostar area with new industrial buildings in the beginning of 20th century (Source: https://www.google.rs/search?q=mostar,+beograd&rlz=1C1GGGE___RS544RS566&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjXq_-08q_NAhUBrRQKHe7kB7MQ_AUICCgB&biw=1366&bih=643#tbm=isch&q=Zbirka+kasine%2C+belgrad%2C+mostar%2C+razglednica&imgrc=IxUEQZwqQYP7_M%3A.

1940, as the biggest at the Balkan and paradigm of state prosperity. Next to the Steam Mill after the WWI, **The State Printing Shop building** was built between 1936 and 1940, as the biggest at the Balkan and paradigm of state prosperity. It is the first building in Belgrade where modern reinforced concrete construction was used for the open space skeletal structure with columns and beams, and one of anthological works of Serbian modern architecture and its architect Dragiša Brašovan (listed as cultural property from 1992). **The Milan Vapa Paper Mill** was built in 1921-24 across the road, near to the river bank and the railway bridge. It was the first paper factory in Serbia, with manufacturing and storage rooms, offices, kitchen, a canteen, an infirmary and rest rooms. The building is today well preserved (listed as cultural property from 2013). At the end of the Sava River industrial area, in Čukarica, is **The Sugar Factory**, the first sugar factory in Belgrade. The building was financed by foreign capital of shareholders' association from Germany. The factory became one of the centres of trade union activities and gathered workers at the time of the most powerful activities of the Social-Democratic party of Serbia and its leader Dimitrije Tucović, whose name it bears after WWII. The reconstructions done after WWII brought

new machines and extended some of the buildings. The original architectural features of the complex were changed, only the central building, the machine-hall, built in brick, has architectural values as important examples of industrial architecture from the late nineteenth century. (Listed as cultural property from 1984)[9].

**Fig. 6:** The Mostar area today (Photo: M.Roter-Blagojević).

## 3 Preservation and adaptive reuse of industrial buildings in Sava river area

Preservation of historic towns, traditional residential and industrial architecture in Serbia is often compromised by a lack of appreciation of their values. Because most of this urban residential and industrial heritage dates from the 18th to the 20th century, sometimes, they are not regarded as sufficiently old to focus the attention of either conservation experts or citizens and users. They don't understand that the buildings which represent their everyday environment actually possess the values and characteristics of monuments. For that reason they are exposed to degradation processes, the areas and buildings are neglected and left to decay. Even though same efforts are taken in Serbia to find a more adequate conservationist approach, to modernise the legal and administrative systems, to integrate conservation into the planning process, and to achieve greater co-operation between the protection service and urban planning, it is becoming more and more difficult to protect the endangered urban heritage, while the preservation of its authenticity and integrity is becoming a prime professional task. Although the conservation of cultural heritage has been integrated into the laws, planning process and master plans, such in Belgrade, aiming to involve a large number of stakeholders and citizens, in the practice we can see many problems and inconsistencies in implementation those goals.

Based on presented historical background and characteristic of those industrial complexes in the Sava River area we can say that it is in same time the cultural heritage of Serbia and Europe because its development is directly influenced by investment, technology, engineers and architects from Hungary, Austria, Bohemia, Germany, France and other centres. But preservation of industrial architecture in Serbia is often compromised by a lack of appreciation of their values. In the last decades, urban renewal and reconstruction of Belgrade river bank areas have had a negative effect with regard to the industrial heritage built there in the late 19th and early 20th century.

But regardless of the state and neglect, the specific historical and urban identity and use of the Sava Port area is preserved until today. The area is the basic element of historical cityscape of Belgrade and the Sava River waterfront and in the focus of interests of planners

9 Ibid.

and investors. It is protected within **The Belgrade fortress** - listed cultural monument of outstanding value from 1946; and **The Kosančićev venac** - cultural–historical unit of great value from 1979)[10]. At the river bank the important old infrastructural building is **The Concrete Hall**, the railway tunnel with a row of white warehouse blocks in the front, facing the river[11]. In the end of 20th century the Concrete Hall became abandoned and ruined, but in last decade the excellent position on the river bank and view on the confluence affected the old warehouses to get a new use as recreation and tourist area. The new river bank waterside promenade is formed. The Concrete Hall now is occupied by exclusive contemporary restaurants and cafes and this area lives a dynamic nightlife. But the problem with late 19th century railway which connected industrial facilities at the Sava and Danube river bank still exists. It has a great impact on the possibilities of urban renewal and development of the Sava port area and safe movement of pedestrians.

The importance of Sava Port area for preservation of historical cityscape and future touristic development of the city is evident. For this area is in 2011 carried out international competition for project which would create a new access point from the Sava river bank to the historic core on the hill. **The project of Beton Hala Waterfront Center** by Sou Fujimoto Architects - 'floating cloud' - won the competition. It was one of the recent attempts to create competitive identity of the town and to brand the city through the famous architect's projects[12].

The one of specific and internationally well-known area, which today is a kind of independent artistic quarter, is ambience under the Sava Bridge, today known as **The Savamala creative district**. For the area was crucial the construction of the first Chain Bridge across the river Sava (1934), which connected Belgrade and Zemun, spanning the eastern and western parts of new Kingdom, which had been divided for many centuries. The many buildings on the river bank, in the area of bridge pylon, were destroyed. And after that river side area was severely damaged during the WWII in German bombardment in 1941, as well as by allied forces in 1944. After war the area was economically and socially degraded, the buildings were neglected and ruined. The main bank street, Karađorđeva St, is even today one of the main traffic city arteries for transport, noisy and polluted. Today most of the old residential buildings and warehouses from late 19th and early 20th century are abandoned, ruined and in very bad condition. But young creative people occupy streets and some old buildings and today Savamala is converted in the heart of Belgrade's new wave of cultural activity and alternative culture, where they work together to redefine the wider image of the city. The informal cultural events happen spontaneously encouraging various alternative approaches of young artists. Many hostels occupy houses and flats in Savamala and in Karađorđeva St. near bus and railway station. A poor area has become an extremely attractive tourist spot.

**The Cultural Center Town (*KC Grad*)** is one of epicentre of creative industries - hosting exhibitions and creating a platform for alternative activates in the city - simultaneously drawing attention to the surrounding riverside neighbourhood, still in very bad condition. Also nearby is open a comedy club, as well as many music clubs, taverns and restaurants, and creative places as contribution for the rebirth of whole neighbourhood[13].

One of Savamala's most prominent venues - the cult place - is **The Mixer House**, a design centre and performance space occupying a vast old warehouse. Inside, you can see works produced by independent designers, or see some performance of young art groups. For several years one of main events in Savamala is the Mixer Festival of Art and Design[14].

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10 Ibid.

11 Ibid. 2

12 Vaništa Lazarević, E. (2015). Urban regeneration tools (city branding) in Belgrade after the democratic change in 2000 – social frame. In G. Doytchinov, A. Đukić, I. Catalina, I. (Eds.) Planing Capital Cities: Belgrade, Bucurest, Sofia (pp. 174-187). Graz: Verlag der Technischen Universität Graz.

13 Ibid.

14 Ibid.

We can say that today the Savamala district shows that civil society, independent creative people and entrepreneurs, with joint actions and small investments, can initiate the development of old ruined areas of historical cities. But in Serbia, nothing is ever straightforward. Through the glass door of the Mixer House, rows of blue flags can be seen, heralding the future arrival of a huge new development - **The Belgrade Waterfront project**, with a vastly different vision on what the future of the city should look like[15]. Today, in the old Belgrade Credit Union building built at the new square Little Market as one of most beautiful modern palace in town, is the main centre for promotion of the project and the model is in the bank hall. The Belgrade Waterfront project – *The Belgrade on the Water* - unveiled last June[16]. The Serbian government launched the project in collaboration with an investment fund from Dubai and construction firm Eagle Hills. The project will stretch right along the Sava riverbank include business offices, vast shopping malls, luxury hotels and apartments. And, in style so typical for Middle Eastern cities its centrepiece will be a 200-metre glass tower. The project is result of City authorities and Government wish to brand the Serbian capital and to undertake development of the city and country.

**Fig. 7:** The State Printing Shop building, 1936-1940, arch. Dragiša Brašovan (Photo: M.Roter-Blagojević).

The project proposed by foreign investors and architects, without any local impact, has provoked a lot of negative public attention. The process of acceptance of the project was not transparent, it was announced after one year, the local citizens and authorities of Municipality of Savski Venac are excluded from the process, the project did not pass the Serbian legal urban development procedure, the Belgrade Master Plan until 2021 is not respected, the professionals in the field have been totally ignored and residents are largely excluded from the investor-led planning process. The project totally reverses the historical development and identity of the old riverside industrial and traffic Sava River area, stretch from Sava Bridge to the Mostar area, the New Railway Bridge and the Belgrade Fair. The new high buildings will block the view from river to the old town and disturb city scape. The continuity of city scape, from Belgrade fortress and Sava port area to the Mostar area will be cut off and disturbed with new high buildings of Water-front. The old city dominant buildings with their domes, like Church St Sava on the Vračar hill, will be blocked.

15 Ibid.

16 Vukmirović, M. (201) Belgrade: The quest for the desired city image. In G. Doytchinov, A. Đukić, I. Catalina, I. (Eds.) Planing Capital Cities: Belgrade, Bucurest, Sofia (pp. 188-210). Graz: Verlag der Technischen Universität Graz.

Today the land around bus and railway station is being cleared rapidly. The old buildings and barracks are in the process of demolishing and its users are relocated. The old railway tracks, which are not in function, are removed. But one new facility – *the Sava Nova Beograd Bistro*, with legal permits as a temporary building, is built at the river bank, by investors connected with city and government authorities. Young people, local NGOs, citizens and the Architects Society, brave enough to step forward against the city officials and government, organized several protests. Especially the wider citizens' initiative against the waterfront project is named *Do not suffocate (or give) Belgrade*. On September 27, the construction of the first two twenty stories buildings started while the opposition of the project organized protest. Many policemen were on the Savamala streets. On October 3 the city authorities start with sale of apartments in the buildings, only on the basis of one model.

The The area of Railway Station is the part of the project. According to the plan, only the Railway Station building will be preserved on the green round square and transformed into museum. The Mostar area is part of that project too. The old railway facilities – like railway locomotive depot and water tower - which are under preventive protection as technical heritage - will be preserved, but without its historical ambience and surrounded by new high buildings.

**Fig. 8:** The First Steam Mill, 1902, before reconstruction (Photo: M.Roter-Blagojević).

The entire old Mostar industrial area is awaiting transformation and renewal. Today the old industrial buildings are abandoned and ruined. They are privatized and new owners have not financial power for renewal and adaptation. They are rented as free space where young creative people gather and work together (artists, designers and musicians) or as offices, stores and warehouses. Especially, the Printing Shop is in very ruined condition.

Only **The Old Mill** is revitalized as a modern hotel, *The Radisson Blue* (by Soravia Group), designed by Biro GRAFT, Berlin, in 2013-2014 with modern facilities, but with inadequate new additions - the high two towers behind and one in front of old building. The process of reconstruction of the old building was inadequate too. The old building was destroyed and entirely reconstructed with new modern reinforced concrete construction. Only the old bricks were recycled as material and used for the façade walls. A very valuable old cast iron construction with pillars and beams was removed, and the old machinery and all equipment too. On the site is evident a disparity between old and new structures, mostly due to the fact that the space is overbuilt and the new buildings are too high. The additions are dominant, blocked the old protected buildings, Old Mill and Printing Shop, and are not harmonizing with the surroundings. The old pillars are at present outside, as decoration

of *piazzetta* in front of building. Inside is modern interior design with façade walls of old bricks. Only that is preserved from authentic building. This project showed that investors and designers did not respect cultural and technical values of historical industrial site. The desire to realize as many new squares as possible prevailed. And other old buildings in surrounding, mostly with residential function, were probably workers lived, are left to decay.

**Fig. 9:** The Old Mill Hotel Belgrade – The Radisson Blu, design Biro GRAFT, Berlin, 2013-2014 (Photo: M.Roter-Blagojević).

## 4 Conclusions

A process of disintegration of the national and local institutions in former Yugoslavia, political tensions and armed conflicts, along with a poor economic situation, evident from the 1980s, had a negative impact on the heritage protection in Serbia at the end of 20th century. Although new democratic system after 2000 brought significant improvements, we must say that the conservation system and practice was stagnated and did not provide a real reform according the world and European recommendations (UNESCO; ICOMOS; Council of Europe). After 2007 were intensified efforts for ratifying missing international conventions in the field of heritage protection and management. At this moment are ratified some Council of Europe conventions: *Cultural Convention*, Paris, 1954; *Convention for the Protection of the Architectural Heritage*, Granada, 1985; *Convention on the Protection of the Archaeological Heritage* (Revised), Valletta, 1992; and *The Framework Convention on the value of Cultural Heritage for Society*, Faro, 2005; as well as UNESCO Conventions: *The Convention Concerning the Protection of the World Cultural and Natural Heritage*, 1972; *Convention on safeguarding of intangible heritage*, 2003; and *Convention on the Protection and Promotion of the Diversity of Cultural Expressions*, 2005. But the main Serbian legal act regarding cultural heritage still is *The Law on Cultural Properties* from 1994 and has been undergoing revision since 2003. In spite of some attempts, the new law has not been adopted. Is obvious an urgent need for revision of this act. Nevertheless, for the political elite steel is more convenient bureaucratized and centralized institutional and political system, rather than developed a lively dialogue among experts in civil service, universities, NGO's and other stake-holders.

For the better approach to the preservation of authenticity and integrity of industrial complexes within their reuse and changes demanded by construction of contemporary

**Fig. 10:** The ambient surrounding the First Steam Mill with old houses (Photo: M.Roter-Blagojević).

features a more active cooperation between Serbia and The International Committee for the Conservation of the Industrial Heritage (TICCIH) as well as the ratification of *The Nizhny Tagil Charter for The Industrial Heritage* (2003) is urgent[17]. The national and local institutions in the field of protection of cultural heritage could take upon themselves the obligation to follow certain international procedures and approaches in the protection of industrial heritage[18].

The preservation of the authenticity and the integrity of a place, or the condition that some place has acquired up to the present moment, and principle of minimum intervention are disregarded in analysed examples of regeneration the old industrial areas and facilities in Belgrade. One of the main problems is inadequate application of the international recommendations that conservation needs to be based on significance and respect for the existing fabric, use, associations and meanings of the historic places and buildings. Evident is lack of understanding the importance of preservation of elements which possess technological value as evidence of a certain level of development of technological culture as well as intangible heritage connected to the life and labour of workers is observed as the foremost problem. In order to stop this tendency and demonstrate a will to achieve further sustainable development, it is necessary to redefine the approach to the protection of Belgrade industrial zones, creating a new one for urban and spatial planning, taking into account all the values, tradition, authenticity and identity [19]

17 The Nizhny Tagil Charter for the Industrial Heritage. Retrieved from http://ticcih.org/wp-content/uploads/2013/04/NTagilCharter.pdf

18 Tufegdžić, A. (2010). Industrijsko urbano nasleđe – spona konzervatorske I planske prakse. In Zbornik Četvrte konferencije o integrativnoj zaštiti (pp. 72-76). Banjaluka: Republički zavod za zaštitu kulturno-istorijskog i prirodnog nasljeđa Republike Srpske.

19 Appraches were presented in: Roter-Blagojević, M., Nikolić, M. (2012). Predlog revitalizacije umetničke livnice "Skulptura". Nasleđe (Heritage), XIII, 221-234 and in Roter-Blagojević, M., Nikolić, M. (2012). Ispitivanje mogućnosti prezentacije i savremenog korišćenja umetničke livnice „Skulptura"u Beogradu. In Živkovoć, N., Dimitrijević-Marković, S. (Eds.), Zbornik radova konferencije Industrijsko nasleđe – problemi i mogućnosti integrativne zaštite, prezentacije i revitalizacije, (pp. 65-76). Beograd: Zavod za zaštitu spomenika kulture grada Beograda.

Ironworks Jesenice. Photo: Sonja Ifko.

Mary McMahon

# Protective Measures For The Conservation Of Ireland's Industrial Heritage


## Summary

*In this paper Mary McMahon presents an overview of the development of industrial legislative cover for the protection and conservation of Ireland's industrial heritage. Outlined are the provisions of the national legislation and the two national archaeological and architectural inventories, and how the planning authorities implement them in dealing with development. The influence of volunteer organisations such as ICOMOS Ireland and the Industrial Heritage Association of Ireland in developing awareness and promoting the national cataloguing of industrial sites is addressed. This paper also deals with the actions of both organisations in recognising and addressing the education and training necessary to develop expertise in conserving our industrial heritage. The impact these have had on recognition of the significance of industrial heritage and the necessity for its protection in the widest sense is explored.*


## 1 Introduction

Internationally Ireland's industrial heritage might not be the first thing that springs to mind when considering its cultural heritage. Perhaps more familiar are its prehistoric monuments such as the Passage Grave at Newgrange, the Round Towers and decorated High Crosses of our Early Christian sites such as Clonmacnoise, or the extensive remains of Viking houses unearthed below the streets of our capital city, Dublin.

However in common with our European neighbours, Ireland has a rich industrial past that is probably best represented by the industrialisation of agriculture, with crops grown for food production, brewing, and the clothing industry. The paucity of significant deposits of coal did not pose a hindrance in using animal, wind and water power in the pre-steam era. Grain stores, flour mills, and linen and woollen mills were built across the country, close to the sources of their raw materials. The Great Famine of the mid-nineteenth century, in which one million people are believed to have died, led to rural depopulation, and subsequently to the expansion of cities and larger towns in the late-nineteenth century. This population shift contributed to the development of urban industries, with steam power, mechanisation and factory labour becoming the norm. Certain industries expanded to become internationally significant manufacturing units, such as Guinness's James' Gate Brewery which had become the largest in the world by the end of the nineteenth century. The provision of utilities – water and sewerage systems, gas and electricity – for this growing urban population became another part of Ireland's industrialisation. Infrastructure for the carriage of people and the transportation of raw materials and finished goods resulted in a network of roads, harbours, canals, and railways criss-crossing the country.

## 2 Legislative provisions

At national level Government legislation and policy has been influenced by International Conventions and Charters which inform decisions about how the cultural value of the built environment is to be treated. In 1997 Ireland ratified the Valetta Convention on the Protection of the Archaeological Heritage, and in the same year ratified the Granada Convention for the Protection of the Architectural Heritage of Europe. Our principal legislative measures that deal with the protection and conservation of sites of special

heritage value, including industrial heritage sites, are the National Monuments Act and the Local Government Planning Act.

## 2.1 The National Monuments Act (1930 - 2004)

The 1930 National Monument Act has been hugely significant in the protection of our heritage, particularly our archaeological sites and monuments. The Act is the basis for our present National Monuments Service, and subsequent revisions have strengthened its provisions. Under the 1930 Act the term 'monument' included all man-made structures whether of archaeological, architectural or of historical interest.

**Fig. 1:** Newmills Corn and Flax Milling Complex, County Donegal: Declared a National Monuments in 1987 and is in the care of the State's National Monuments Service.

The Archaeological Survey of Ireland (ASI) was established to compile an inventory of all known archaeological sites in the State. The ASI however focused on sites of pre-1700 AD date. In 1987 an Amendment to the Act extended its remit to include post-1700 AD sites that were considered of national importance.

**Fig. 2:** Cork City Waterworks Complex: Structures are included in the National Inventory of Architectural Heritage and the Cork City Record of Protected Structures. Now offers an educational facility for the primary school curriculum.

The provisions of the Act were further strengthened in 1994 with the establishment of the Record of Monuments and Places (RMP) and now all sites identified in the ASI are included in the RMP. As they are accorded Statutory Protection, any proposed development at a site included in the RMP must be notified in writing two months in advance to the relevant Ministerial Department, who, in conjunction with the local Planning Authority will assess the proposals and set mitigation procedures. Currently the RMP contains approximately 140,000 monuments, but as the vast majority are of pre-1700 date, this legislation provides limited protection for eighteenth to twentieth century industrial heritage sites.


**Fig. 3:** Speakers at the training module Ireland's Industrial Heritage: The Conservation Challenge, organised by the IHAI in October 2016. Left to right: Miles Oglethorpe, Michael Grace, Paul McMahon, Susan Roundtree, Sir Neil Cossons, Mary McMahon, Lisa Edden, and Michael Phillips.

## 2.2 Local Government (Planning and Development Act) 2000

This Act is a milestone in the history of our legislative protection of the built heritage, and was introduced to implement the provisions of the Granada Convention. The previous Planning Act 1963 had empowered county and city planning authorities to list buildings because of their artistic, historic or architectural interest and to formulate related policies and objectives. However the listing was at the discretion of each local authority and buildings with industrial functions were under-represented in the official listings.

A statutory obligation of the 2000 Act is that each Planning Authority produces a Development Plan, which is a written statement of its policies and objectives on cultural heritage and conservation matters. They must compile and maintain a Record of Protected Structures (RPS), which is a mechanism for the statutory protection of the built heritage and forms part of each Authority's Development Plan. Significantly for our industrial heritage stock, the criteria to be considered for inclusion in the RPS were greatly extended to include structures of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. The protection extends to a structure's fixtures and features, and also structures within its curtilage. This is particularly relevant to industrial complexes where the whole can be of greater significance than specific individual elements.

The National Inventory of Architectural Heritage (NIAH), established in 1999, is empowered to make recommendations to the Planning Authorities to include structures in their RPS. The NIAH brief is to identify, record and evaluate all post-1700 built heritage. In using the eight criteria, a greater number of industrial sites are now included in the NIAH, and in this way can be designated for protection within the RPS. Due to the numbers involved and the

resources required however, the NIAH surveys a representative example in each county and as a result, although coverage has increased and many structures of industrial interest are included, a comprehensive inventory of our industrial heritage stock is not yet available.

**Fig. 4:** Dublin Gasworks: Late nineteenth century gas holder was converted into a multi-storeyed apartment building in 2006.

**Fig. 5:** Electricity Generating Stations, Dublin: The two tall chimneys are from the Poolbeg Station built 1965-1971. The low red-brick building on the right is the 1903 Pigeon House Station, and was an early pioneering example of three-phase electricity generation.

The Development Plan, together with the architectural heritage provisions of the Planning Act, is the strongest legislation applicable to the industrial heritage. Recognising that many industrial heritage sites are not included in the RPS, specific policies and objectives to protect the buildings and features of industrial heritage have been included in some of the Development Plans. There are examples of this tool being used for both largescale infrastructural projects, and also small site developments where the industrial structures have not be included in the RPS. In these cases the planning authority has insisted that industrial heritage assessments were undertaken, and as a result have enforced mitigation measures as conditions of planning permission.

The Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs has recently undertaken a review of the Act. An expert advisory committee was established to carry out the review and consisted of a range of experts from the public and private sector, including members of ICOMOS Ireland and its Industrial Heritage National Scientific Committee (IHNSC). The review examined in detail the implementation of the Planning and Development Act since 2001 and the draft report which included some proposed legislative amendments was circularised in December 2016 for comment before the recommendations are implemented.

**Fig. 6:** Ballycorus Lead Mines, County Dublin: The flue chimney is the most prominent surviving feature of the leadworks which opened in 1807 and operated for over a hundred years. Protected by Preservation Order under the National Monuments Act whereby the owner is legally obliged to preserve it.


**Fig. 7:** Guinness Storehouse, St. James's Gate Brewery Dublin: This former fermentation plant, constructed in 1902, now houses Europe's top visitor attraction.

## 3 NGOS and the *Dublin principle*

Similar to other European countries, the lead in protecting, preserving and promoting the industrial heritage of Ireland has been taken by volunteer organisations and enthusiasts, many with a particular expertise. In June 1996, the Industrial Heritage Association of Ireland (IHAI) was established to raise awareness at national level of the significance of our industrial heritage past, and at the top of their list of objectives was the establishment of a national industrial heritage inventory. Increase in development, particularly in urban areas, was posing an immediate threat to the survival of unprotected industrial heritage sites and a national inventory was seen as a way to enable informed decisions to be made regarding what levels of protection should be given at national, regional and local levels. They undertook a number of promotional campaigns, and held meetings with government and local authority representatives, as well as the Heritage Council of Ireland's network of Heritage Officers who were employed in the city and county planning local planning authorities. This was very successful and as a result a number of our local authorities subsequently included industrial heritage surveys as actions of their annual County Heritage Plans. The Heritage Plans offer the local authorities the opportunity to raise awareness, create understanding, forge partnerships, inform and put in place best practice, and identify and implement key heritage projects. In order that the surveys would follow a standardised format, the Heritage Council commissioned a publication that introduced a standardised recording methodology (Recording and Conserving Ireland's Industrial Heritage: An Introductory Guide, Hamond, F. & McMahon, M.). The surveys have resulted in an increase in the numbers of industrial sites included in the NIAH, and also significantly in the county Record of Protected Structures.

The IHAI also actively encourages community involvement and volunteer expertise. In a sector as diverse as industrial heritage, networking is essential. To mark its 10th anniversary, the IHAI organised a networking conference and workshops in partnership with the Heritage Council of Ireland, the Irish Government Department with responsibility for the Heritage Service – the Office of Public Works, and the Environment and Heritage Service of Northern Ireland. Over fifty participants attended drawn from the various organisations active in industrial heritage, as well as representatives from government departments and the local authorities. Themes covered included field recording, inventory and archiving; awareness raising, tourism and funding; and conservation and planning. The networking provided the opportunity to promote the concept of a comprehensive industrial heritage database and adoption of the standardised recording methodology.

ICOMOS Ireland works closely with the IHAI and in 2006 ICOMOS established an Industrial Heritage Committee National Scientific Committee (IHNSC) whose membership includes architects, planners, engineers, archaeologists and engineers, working to a three-year business plan. The International Charters and Principles that ICOMOS has produced since its inception in 1965 are recognised and accepted in Ireland as best-practice guidelines and, most importantly are embedded into the decision-making of our planning authorities when considering development proposals. The IHNSC promoted the adopted by ICOMOS of the Nizhny Tagil Charter for the Industrial Heritage and also actively participated in the development of the Dublin Principles (Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes), and since their ratification in 2011 ICOMOS Ireland and the IHAI have been actively engaged in promoting them. We have particularly targeted their adoption by government, local authorities, and other statutory institutions as they provide a focused framework for the strategic and operational management of our industrial heritage.

## 4 Training initiatives and capacity building

With the growth in awareness and actions, and the development of the necessary legal and administrative frameworks for the protection of the industrial heritage, ICOMOS Ireland posed the question of how prepared are the built heritage professionals to meet the

requirements of planning, etc. Do they have the necessary knowledge and skills associated with the safeguarding of the industrial heritage? In 1994 they had carried out a Review of the state of conservation education and training in Ireland, but the years since had seen many changes: new legislation, increased prominence of the issue of conservation and increased number of stakeholders involved, new measures to upgrade expertise, the emergence of conservation officers as a new profession, greater range of NGO engagement, and enhanced public interest. So in 2009 they carried out a second Review and published the results – Sustaining our Built Environment.

The Review considered four categories in which skills training was considered necessary – materials conservation; crafts in the building industry; education and building professionals; and heritage-related courses and activities. Based on their findings, a number of recommendations were made including the need to address education and training for the development of expertise in the conservation of industrial heritage. A number of seminars and workshops followed its publication and the IHNSC, in consultation with the IHAI, proposed a number of actions for capacity building in the industrial heritage sector.

Taking up the challenge, in September 2015 the IHAI organised and delivered an Introductory Module on Industrial Heritage, which focused particularly on the needs of professionals working in the built heritage environment. The course was run in partnership with ICOMOS Ireland, and was recognised as Continuing Professional Development (CPD) by the professional institutes i.e. the Royal Institute of the Architects of Ireland, Engineers Ireland, the Irish Planning Institute, and the Institute of Archaeologists of Ireland. The event proved to be very successful, with over sixty delegates attending both from the public and private sector.

Following feedback from the participants, in October 2016 a second CPD Module was organised by the IHAI in partnership with ICOMOS Ireland, titled *Ireland's Industrial Heritage: The Conservation Challenge*. The event focused on the challenges facing the heritage sector in the conservation of historic industrial sites, and the projects selected were of local, national and international significance. The individual presentations were followed by a structured discussion on the application of the *Dublin Principles* as a common standard for industrial heritage conservation. As with the first Module there was a very large uptake, with professional and administrative representatives from the relevant government departments, the local authority planning authorities, the statutory institutions, and the private sector.

## 5 Conclusions

I think the best way to conclude this paper is to give an example of how the initiatives taken by ICOMOS Ireland and the IHAI, are working with the government, local planning authorities and statutory bodies, are playing a role in the conservation of Ireland's industrial heritage.

Waterways Ireland are a statutory body with responsibility for Ireland's historic inland navigation systems. They have participated in both Industrial Heritage Modules organised by the IHAI and ICOMOS. They have now produced a Heritage Plan for 2016-2020 and, very significantly, they have referenced the guidance provided by the Dublin Principles in achieving their aims, objectives, and actions. The document contains over seventy actions, and the following are just a few: collate and archive waterways heritage information and develop a Heritage Inventory and Directory; identify gaps in research and develop an action plan to address these gaps; pilot a waterways oral history project; targeted traditional skills training for staff; education programme for staff on all aspects of waterways heritage including built, natural, archaeological and historic navigational infrastructure; information and training for staff, contractors, and community groups to include heritage legislation and best practice; and develop conservation programmes on selected heritage sites/hubs to be carried out according to principles of best practice and publish proceedings and results.

Lakonca Trbovlje, Coalmine LTH. Photo: Sonja Ifko.

Sonja Ifko

# Protection of Authenticity and Integrity of Industrial Heritage Sites in Reuse Projects


## Summary

*This paper addresses the basic but also conflicting starting points that are key to the preservation of industrial heritage. On the one hand, this relates to the preservation of values of important heritage, while, on the other hand, abandoned industry sites have the spatial potential for developing new urban programmes and functions allowing for modern spatial and economic development. Abandoned historical industrial sites are mostly located in urban centres where there is a significant need for new development areas. This is precisely what leads to conflict situations, i.e. where guardians of heritage and designers of the new are in disagreement.*

*This paper presents a methodology based on a values-led approach, whose basis is to consider, as objectively as possible, all aspects defining reuse or renewal projects concerning heritage sites. It includes the parameters of protection, development, and social requirements to the greatest extent possible to achieve efficient and sustainable solutions of reuse projects. This approach, based on the process developed in the Burra Charter, is mostly used in practice in Anglo-Saxon areas, but less so in Europe; nevertheless, it is increasingly being implemented because of the connection of conservation and development aspects. This paper checks this approach as a starting point for system changes concerning protection of industrial heritage in Slovenia, which would allow for a maximum preservation of heritage attributes precisely through the inclusion of all stakeholders and thus also development parameters in the earliest phases of industrial heritage reuse projects, which require, because of their complexity, different approaches than those conventionally used.*


## 1 Introduction

Nowadays we refer to the social role of heritage not only as the vehicle of identity but increasingly in terms of its economic development component. The essential part of this is the preservation of heritage attributes – its authenticity and integrity, which constitute heritage as such. It is thus necessary to carefully study the characteristics of industrial sites as heritage values and, on the other hand, the development parameters of revitalisation processes to be considered to find an effective synergy of both poles for successful implementations of reuse projects and, in this context, effective protection and presentation of heritage.

First, we present the most important characteristics of industrial heritage sites, their spatial development role and characteristics shaping reuse processes; then we will present a proposal for guiding project approaches that could as far as possible allow us to balance all parameters, both developmental and protective. The symbiosis of both value poles is what enables a long-term success of projects but is the most difficult to achieve due to the wide array of interests. This paper highlights two basic heritage attributes – authenticity and integrity. Their preservation as far as possible is the starting point to guide reuse projects and revitalisation processes in industrial heritage sites[1], in a sustainable

1 The Nizhny Tagil Charter for the Industrial Heritage defines industrial heritage as: Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains 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

way which consistently considers all aspects – along with protective ones, also social, spatial development, and economic ones. This kind of approach is also mentioned in the Introduction to World Heritage Resource Manual concerning cultural world heritage, stating (p. 14):[2] "It is essential that the heritage bodies work with other stakeholders as far as possible to develop and implement an agreed vision and policies for managing each heritage place within its broader physical and social context ."

## 2 Characteristic of industrial heritage

### 2.1 Complexity of industrial heritage

To guide revitalisation processes in a broad scale, and in this context the individual reuse projects of abandoned industrial sites, it is first necessary to understand the heritage of these sites in all its dimensions. Sir Neil Cossons defined industrial heritage as the most complex heritage category, stating further[3] that "Industrial heritage is, arguably, a unique cultural discourse, which brings challenges found nowhere else in the heritage sector and requires new answers." This relates to the understanding of material remains as an intangible aspect of industrial heritage; these are particularly important and often neglected in the context of reuse projects.

To allow for preservation of basic heritage attributes it is essential that the entire reuse process is appropriately set out. Firstly, it is important to design the appropriate analytical approach used to obtain all the information on heritage, providing the basis for determining the values that are of key importance. Given the complexity of industrial heritage, the research analytical phase must be always carried out in the framework of an interdisciplinary study group composed of various experts, at least experts in history, technical development and science, architecture, sociology, and ethnology. Along the heritage properties it is necessary to study other impacts and interests shaping the future of heritage places, which will be addressed below.

### 2.2 Industrial heritage values

The understanding of industrial heritage values is essential for their preservation. They are the most comprehensively defined by the Nizhny Tagil Charter whose article 2 proclaims (paragraph ii, iii): The industrial heritage is of social value as part of the record of the lives of ordinary men and women, and as such it provides an important sense of identity. It is of technological and scientific value in the history of manufacturing, engineering, construction, and it may have considerable aesthetic value for the quality of its architecture, design or planning.

These values are intrinsic to the site itself, its fabric, components, machinery and setting, in the industrial landscape, in written documentation, and also in the intangible records of industry contained in human memories and customs.

The same article highlights the significance of the evidence of activities, which had and continue to have profound historical consequences. The motives for protecting the industrial heritage are based on the universal value of this evidence. This is key when speaking of the significance of those sites that lack exceptional characteristics such as rarity and exceptional development, as their testimonial value is often underrated and not researched enough, legally unprotected and thus at the discretion of various real-estate speculations. Of course, this does not mean that we should not stress the heritage that presents exceptional development achievements, as emphasised in the charter.

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or education.

2 Managing Cultural World Heritage, World Heritage Resource Manual. (2013). The United Nations Educational, Scientific and Cultural Organization, Paris, France: http://whc.unesco.org/en/managing-cultural-world-heritage/

3 Cossons, N. (2012). Why preserve industrial heritage? in: Industrial heritage Re-tooled, The TICCIH guide to industrial heritage Conservation. ed. Douet, J. TICCIH by Carnegie Publishing, Lancaster, Great Britain, p 6-16.

2.3 Authenticity and integrity as the fundamental heritage attributes

Due to the intensive social and economic development, we are increasingly becoming aware of the importance of heritage for the society as a whole, for various environments, and for each individual. In 2005 the Council of Europe adopted the Faro Convention on the Value of Cultural Heritage for Society[4], which stresses the role and significance of cultural heritage as the foundation of our cultural identity and, on the other hand, as development potential of our common future. Industrial heritage is that heritage category that was shaped by the largest mass of people in all human history; it is the key identity maker of practically anyone in the modern post-industrial society. This is why a major part of population identifies with it, understands it, feels it, and thus strives to protect it. Of course, to give it equal status among all heritage categories it is necessary to appropriately present this heritage to the general public and take professional care of its conservation. This is why the definition of its role should be based on the attributes used by the profession when defining heritage characteristics.

Authenticity and integrity are key heritage attributes and as such represent the key of heritage per se. Both elements are the essential criteria in evaluating heritage sites and structures when talking about monuments of the highest significance[5] and also in the cases of sites of lesser significance, as integrity and authenticity complementarily expose the significance of originality and integrity. These are the key characteristics in preserving industrial heritage as well. They are the basis for its understanding, particularly because this heritage category is highly complex. Appropriate heritage protection is possible only when heritage is appropriately understood.

**Fig. 1:** The complexity of industrial heritage requires professionals to develop clear conservation guidelines to preserve its authenticity and integrity to the greatest degree possible. An example of an ironworks complex renovation is shown, where part of the building is turned into an exhibition area, while another part is preserved in its original form, Ravne na Koroškem, Slovenia. Photo: Sonja Ifko.

In the past, there were many problems and inappropriate approaches in relation to renovation of industrial heritage sites, which primarily preserved the visually attractive parts of the sites, while the rest was removed without being properly recorded or assessed.

The significance of comprehensive information for heritage protection is addressed in paragraph 9 of the Nara Document on Authenticity[6], adopted by ICOMOS in 1994. “Conservation of cultural heritage in all its forms and historical periods is rooted in the values attributed to the heritage. Our ability to understand heritage values depends, in part, on the degree to which information sources about these values may be understood as credible or truthful.” Article 13 of the Nara document explicitly stresses the aspects of

4 Faro Convention on the Value of Cultural Heritage for Society, Council of Europe (2005). http://www.coe.int/en/web/conventions/search-on-treaties/-/conventions/rms/0900001680083746

5 These two elements are clearly defined by the Operational Guidelines for the Implementation of the World Heritage Convention: http://whc.unesco.org/en/guidelines/

6 The Nara Document on Authenticity, ICOMOS, (1994). http://www.icomos.org/charters/nara-e.pdf

authenticity[7]: “Depending on the nature of the cultural heritage, its cultural context, and its evolution through time, authenticity judgements may be linked to the worth of a great variety of sources of information. Aspects of the sources may include form and design, materials and substance, use and function, traditions and techniques, location and setting, and spirit and feeling, and other internal and external factors. The use of these sources permits elaboration of the specific artistic, historic, social, and scientific dimensions of the cultural heritage being examined.”

Integrity is understood as a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. Only the wholeness of monument or heritage unit allows for a complete understanding of its values. The definition that is also adopted after **The Operational Guidelines for the Implementation of** the World Heritage Convention[8] is an appropriate starting point for determining the degree of integrity of industrial heritage sites: Examining the conditions of integrity, therefore requires assessing the extent to which the property:

a) includes all elements necessary to express its (Outstanding Universal) Values;
b) is of adequate size to ensure the complete representation of the features and processes which convey the property’s significance;
c) suffers from adverse effects of development and/or neglect.

It is particularly important to define the level to which it is possible to interfere with the integrity of certain sites according to their heritage values and consequently their legal protection status; e.g. sites protected as heritage, local monuments, or monuments of national significance as defined in our case by Slovenian legislation. The fact is that adaptive reuse processes must allow for the functioning of new programmes, while practice shows that efficient projects can be carried out in a coexistence of the old and new, if the interests of those included in the projects are in favour of the heritage.

The Nizhny Tagil Charter also highlights the significance of both attributes stating: “Conservation of the industrial heritage depends on preserving functional integrity, and interventions to an industrial site should therefore aim to maintain this as far as possible. The value and authenticity of an industrial site may be greatly reduced if machinery or components are removed, or if subsidiary elements which form part of a whole site are destroyed.”[9] Precisely the removal of machinery and infrastructure, which are the necessary elements of an integrated testimonial value of reuse projects, are the main problem in Slovenia as well.

In summary, in the context of preserving authenticity and integrity of industrial sites it is important to preserve the material framework as a starting point of integrated protection, while these processes are made difficult by many characteristics, particularly the complexity of industrial heritage sites and the fact that in most cases it is impossible to fully preserve their integrity, particularly in reuse projects that generally require more intervention. It is therefore the more important to understand heritage, assess it, and direct reuse projects so that both attributes are preserved to a maximum degree possible. Here let us again borrow the words of one of the most prominent experts in the field, Sir Neil Cossons, who wrote: “Industrial heritage demands knowledge, great judgement and real understanding. From understanding grows valuing; from valuing grows caring and from caring grows enjoyment and inspiration.”[10]

7 Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning as accumulated over time, are the requisite bases for assessing all aspects of authenticity.
8 The Operational Guidelines for the Implementation of the World Heritage Convention, UNESCO (2016). http://whc.unesco.org/en/guidelines/
9 The Nizhny Tagil Charter for the Industrial heritage, TICCIH, (2003). http://ticcih.org/wp-content/uploads/2013/04/NTagilCharter.pdf
10 Cossons, N. (2012). Ibid.

2.4 Studying the continuity of development, and the design of a 'dynamic methodology'

Considering the multidisciplinary approach of research, while researching industrial heritage the necessity of researching the continuity of development must be emphasised. This was already pointed at by the industrial archaeologist M. Palmer[11], and two other important industrial heritage researchers, i.e. M. Stratton[12] and M. Cherry[13] already two decades ago. This regards the necessity of contextualising the researched structures in time and location of their origin. Hence, the development can be presented comprehensively and comparatively.

In line with the research tendency, we should also draw attention to another assumption in the design of the research and protection methodology, which is relevant for the design of the evaluation method. This is the so-called 'dynamic methodology'[14], i.e. a methodology appropriate for, and adaptable to, the same segment of heritage in all periods of development, e.g. industrial architecture of the 18th and 19th centuries, including the structures built to this day.

## 3 Characteristic of regeneration processes and reuse of former industrial sites

3.1 Key revitalisation factors of former industrial sites

When talking about the position of the heritage and its reuse in the framework of urban revitalisation we are aware that it depends on many factors, which are often very specific, but generally they can be classified as: economic and financial issues, degree of preservation of built and other structures, environmental conditions of regenerations, social and cultural conditions, provision of a quality living environment, and issues concerning creation of new jobs. The definition of the role of the factors in revitalisation processes must follow sustainable development requirements, where all aspects of sustainability must be considered, including ecological, economic, and social.[15] The fact is that the relationships between the parameters are imposed by the specific conditions of local environments, powers, and interests of those involved, even though high-quality long-term solutions should equally consider all of them.

We should also stress two more important aspects specific to industrial regions, which are often not considered enough. These are ecological remediation of the sites and socio-economic conditions; during the closure and restructuring of production, both aspects are a pressing challenge that local environments must tackle. Ecological remediation is an essential element, but this extensive issue falls beyond the scope of this paper. On the other hand, socio-economic conditions are addressed here; their solving can be directly linked to the planning and implementation of heritage protection at the sites.

3.2 Socio-economic conditions during the closure of industrial plants

Only a small percentage of industrial heritage sites and buildings is inventoried, evaluated, and legally protected when active manufacturing is still under way. In most cases industrial sites are studied, evaluated, and equipped with protection measures only after the

11 Palmer, M. (1998). Answer to the question sent to the industrial Heritage Mailing List, January 1998..
12 Stratton, M. (1995). Evaluating Twentieth Century Sites for Protection: A case Study of the Coventry Motor Industry, Managing the Industrial Heritage, Leicester Archaeology Monographs No. 2, Leicester, p. 83-90.
13 Cherry, M. (1995). Protecting Industrial Buildings: The Role of Listing, Managing the Industrial Heritage, Leicester Archaeology Monographs No. 2, Leicester, p. 119–124.
14 Cherry, M. (1995). ibid.
15 Ifko, S. (2016). Comprehensive management of industrial heritage sites as a basis for sustainable regeneration. in: Drusa, M. (ed.). World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium 2016, WMCAUS 2016, (Procedia engineering, ISSN 1877-7058, Vol. 161 (2016)). [S. l.]: Elsevier Ltd., cop. 2016, vol. 161, str. 2040-2045.

production stops. This generally means that a company went bankrupt and people lost their jobs, causing economic and social crisis, to a greater or lesser degree. Even though we cannot directly link heritage protection to the conditions defining the processes connected with the closure of industries, these processes are often extremely linked and correlated. Sites and buildings are mostly included in the insolvent estate and companies want to sell them at an advantageous price to pay their debts. Of course, first it is necessary to ensure the livelihood of laid-off workers and usually there are no funds available for major protection campaigns. Owners generally do not seek legal protection of the heritage as it is then legally binding for them. Industrial heritage is, at least in Slovenia, a protection category that is not valued enough for the investors to see potential in its promotion, and is thus not included in development potentials of the sites, or only rarely. An enormous potential lies in the possibility of connecting the social cohesion policy and industrial heritage protection projects, or at least their inventory.

**Fig 2:** Inclusion of former employees into the protection and promotion of industrial heritage is an opportunity for heritage and employment of people who lost their jobs in the aftermath of the industry shutting down. Case of miners who now guide tourists around the mercury mine museum, which is inscribed on the UNESCO's World Heritage List. Source CUD Hg, Idrija.

### 3.3 Evaluation of industrial heritage revitalisation and reuse projects

We have several decades of practical experience with reuse of industrial heritage sites both at the global and European scale. Nevertheless, there have not been many studies that would provide a comprehensive analytical evaluation and the basis for directing future development. In his study Value and Revitalizing Industrial Heritage, the Dutch researcher Ruud van der Kemp stemmed from economic parameters of evaluation. Economic indicators are the basic and most widely used way of evaluation and, for many, the only credible comparative criterion of evaluating various investments and cultural heritage regenerations.

In his study, Ruud van der Kemp[16] states: "When using economic indicators in evaluating industrial heritage conservation measures to define the economic value factors we should follow a system that includes all the relevant revitalisation aspects."

He divided the economic values into two groups – "measurable values" (e.g. in Euros, per square meter) which he refers to as "hard" values, and "non-measurable values", which are subjective or not collectively accepted, also called "soft" values.

The analysis helps us to identify the cultural and conservation values of the study area that are irreplaceable and the most difficult to quantify financially. The values that we want to expose in industrial heritage conservation processes belong to the group of non-measurable values, which makes their implementation in urban regeneration processes even more

16 Van der Kemp, R.J. (2009). Value and revitalizing industrial heritage, research report, Technical University of Eindhoven, Faculty construction engineering, Eindhoven. https://pure.tue.nl/ws/files/46962103/658485-1.pdf

difficult.

Conservation protection procedures are financially shown as costs whose economic impact, in the medium to long term, cannot be given in the financial breakdown of a project. When establishing a system identifying the project's "soft values" from an economic point of view as well, it is important to analyse all intangible heritage elements as well and take them into account in the evaluation. These characteristics (tradition of knowledge and skills, brand recognisability, etc.) have a large indirect economic potential and are an important element when identifying the "soft values". It is important that they are pointed out in a substantiated manner at the project design stage, as they can play a crucial role in finding new development pathways at the sites, primarily by introducing new programmes in the context of future development and also in reindustrialisation processes. Industrial heritage can become the basis for developing successful economic and cultural tourist models and importantly contribute to the reindustrialisation processes necessary for the global competitiveness throughout Europe. Intensive development of high-technology is necessary for the development of Europe's economy; industrial heritage is both from tangible (abandoned buildings and sites) and intangible (knowledge, tradition in manufacturing) aspects a development advantage that we are not yet able to derive full benefit from.

Even though the economic value of cultural heritage as such is extremely difficult to quantify, with older cultural heritage the costs of conserving its cultural and historical value are borne without major objections by developers, and the costs of cultural heritage conservation interventions are generally accepted; indeed, the investors recognise that in the long term these costs generate added value, even if the impacts are not directly quantifiable.

However, it is felt that there is no such automatic acceptance of conservation costs associated with industrial heritage. Developers mostly seek to minimise project costs, and do not promote the projects based on the heritage of the site, but rather increase their return on investment at the expense of attractive architectural developments increasing the visibility of the sites, using the so-called Bilbao Effect.

3.4 Significance of appropriate programmatic decisions

New programmes are essential for the success of regenerations, so their selection should be well considered and based on spatial developmental strategies and plans, but at the same time we have to find the way how to effectively preserve and promote heritage of the sites.

**Fig 3:** Heritage of industrial companies is an important part of their identity and a testimony to its tradition as the basis of their success. On the occasion of its 80th anniversary, the company Dravske elektrarne Maribor restored its former hydroelectric power plant Fala and converted it into the company's museum. Photo: Miran Kambič.

In previous years, private investors in Slovenia mostly opted for programmes associated with the construction of housing and commercial centres to provide the highest short-term financial gain. The existing buildings were demolished and replaced by new ones practically everywhere, despite the good opportunities for renovating the existing buildings. Much important industrial heritage is lost in such a way. Linking conservation endeavours and programme design is essential and should be given much consideration, thus encouraging developers and local authorities to find distinct types of public-private partnership.

## 4 Proposal for a methodology of designing reuse projects concerning industrial heritage, with the starting point of allowing for authenticity and integrity of the heritage

If we want to preserve the authenticity and integrity of heritage sites in the processes concerning their reuse, an efficient management of projects from their beginning onwards is essential. Harold Kalman refers to this as "managing change"[17], i.e. the core of reuse design, which presents a complex process of activities and harmonisations prior to the start of the final project design and implementation. Heritage management starts with the planning of developments at a site and is the key starting point for protection and developmentally successful revitalisation projects.

Nowadays, conditions in heritage management increasingly change at all levels, i.e. from objectives, governance to management techniques. In the study on the changing role of heritage in the society, and in the manner of its management, as published by A. Phillis[18], the contemporary directions in heritage management can be summarised as follows: it is crucial to reach a consensus and to know how to adapt to the conditions; regarding managing skills he says that the new conditions require managing by multi-skilled individuals, which is contrary to the traditional system mastered by experts and scientists.

This is a fact that we should adapt to if we want to achieve successful protection solutions and provide a future to the heritage. This does not mean that protection standards are being lowered but rather this refers to their growth and the overcoming of the conventional divisions and controversies among heritage guardians and development interests. Such an approach requires new starting points and a sincere commitment of everyone to reach all acceptable compromises. Conventional protection processes involve three known steps: identification of heritage characteristics and their documenting, evaluation, and, in the third phase, determination of protection measures that provide the basis for planning; with the increasing complexity of the heritage and the parameters directing its development the values-led approach was introduced, which is based on the inclusion of all interests/ stakeholders that help to shape the future of certain heritage sites. This approach has gained ground in Anglo-Saxon countries and is increasingly being used due to its wide applicability. It is particularly appropriate for industrial heritage sites, as they are extremely complex, while their future depends on many interests.

### 4.1 Burra Charter Process as a basis for integration of conservation and developmental aspects of industrial heritage sites

Below we present in detail the values-led approach used also in the Burra Charter Process (BCP), which in this paper serves as the basis for finding the way for a more efficient preservation of authenticity and integrity attributes within urban revitalisation processes and reuse projects of industrial areas in Slovenia as well, where in many cases we face problems of improper protection of industrial heritage.[19] BCP was first adopted

17 Kalman, H. (2014). Heritage Planning, Routledge, London and New York.

18 He wrote about natural heritage sites, but the paradigm is the same. In Phillis, A., 2003, p 8-32.

19 Many heritage sites are not inscribed due to work overload of professional services. Unfortunately, in Slovenia, the inscription on the Heritage Register under the term "industrial heritage" is not provided for either. The Ministry of Culture's Register lacks such a register so units are typically inscribed as a "factory", a "mine", or a "secular heritage site". This adversely affects the presentation of their heritage testimonial value, since it does

in Australia in 1979 and presented in The Burra Charter The Australia ICOMOS Charter for Places of Cultural Significance.[20] BCP is based on an actual mining historical site Burra and is thus particularly adapted to the specificities of industrial mining areas. It highlighted the "assessment of the significance of the place – based on the values attributed by all stakeholders (not only experts) and the use of a Statement of Significance – as a basis for developing conservation and management strategies," as is summarized in the manual Managing World Cultural Heritage MWCH[21], which provides a synthesis of the most important professional findings in the area of managing world heritage sites.

The statement of significance is based on the so-called values-led approach that stresses all values of a heritage site not only the ones that highlight the significance of the heritage, but with inclusion of the heritage in the social development, spatial, and economic sense. In this approach, the significance of a heritage property is first established in a participatory process involving all those who have an interest in it. Having defined the significance (statement of significance), this becomes the framework for developing conservation policy and strategy where the condition of the property, rules and regulations, the needs of the communities, etc., are taken into account."[22]

BCP is methodologically divided into three basic stages: Understand significance, Develop policy, and Manage in accordance with policy. Each stage is structured to allow for updating the information on heritage in the sense of considering new conditions on sites, which require adaptations in management[23]. The procedure adapted to the characteristics of the industrial mining heritage for the Trbovlje Mine and the Hrastnik Mine that is closing down was presented at the WMCAUS conference in Prague in 2016.[24] In this paper the methodology is generalised and adapted to Slovenian conditions. The first phase of the process is presented in detail; it is decisive from the point of view of preserving authenticity and integrity of industrial sites in reuse processes. The other two phases, which are also essential for successful reuse processes of industrial sites, and management of these sites with additional content, will be, due to their too extensive scope, presented only through the basic characteristics of the process.

### 4.2 Proposal for an adapted approach to managing industrial heritage sites in reuse projects

#### 4.2.1 The first stage of the process: Understand significance

**Understanding of the place**

The understanding of the significance of the heritage addressed is the key phase that consists of two steps: the first one is Understand the Place and the second one is Assessment of Cultural Significance. The first step is analytical, while the second one can be compared to evaluating heritage in the traditional protection system.

The understanding of the place requires, firstly, the collection of data for each site/place considered, which are systematically arranged within the following groups of characteristics:

Basic information:
This chapter compiles the basic information on a site: its location, size, list of structures at the site, ownership, cultural protection status, status in spatial planning documents.

History:

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not allow for a comprehensive relation treatment, e.g. of production, transport, operating, housing, and business structures, etc., which form a comprehensive image of industrial heritage sites.
20 The Burra charter, (2013). The Australia ICOMOS Charter for Places of Cultural Significance, ICOMOS Australia.
21 Managing Cultural World Heritage, World Heritage Resource Manual. (2013). UNESCO, Paris.
22 Managing Cultural World Heritage, World Heritage Resource Manual. (2013). ibid.
23 The Burra Charter (2013). Ibid.
24 Ifko, S. (2016). Ibid.

To present history of the place it is important to prepare a systematic summary of development characteristics from the lists of all sources; regular updating of information on an internet platform is proposed, which ensures access for all.
To understand the historical significance, it is necessary in the first place to collect data of the heritage itself and in this context, expose all the important elements of its manifestation, i.e. tangible and intangible ones, and to properly analyse each one. These are complex processes, which I discussed in more detail in the paper Industrial Architectural Heritage – Re-evaluating Research Parameters for More Authentic Preservation Approaches[25]. A crucial component of history research is that an industrial production unit – industrial complex /e.g. factory, mine, power plant, etc./ is the basic research unit, researched on three levels: first, the complex in question is analysed as a whole by defining its main characteristics, its component parts – a list and function of all the complex buildings and structures, a functional concept, and the historic and testimonial characteristics.
The next level analyses individual important structures and buildings, when the building, construction, technological, and technical characteristics are emphasised.
In the third phase, the complex is again treated as a whole, but this time in relation to the wider area it was created in. These characteristics are defined by the spatial and urban development elements of the complex itself and its influence on its surroundings.

To understand the industrial sites, it is important to research the following groups of characteristics:

i. The historical and social characteristics
Seek to define the consequences of industrialisation as they manifested through historic, social, economic and political events, and also through the culture created by these circumstances. In this part we define the impacts of the industrial complex – a company, a mine – directly on all the changes brought about by its presence in space. We address issues such as the impacts on the cultural landscape (how it was transformed over time due to the industry), urbanisation and its development, economy and economic development (what was the impact of the factory and potentially the connecting/supporting industry), what was the significance of the industry in relation to the housing culture (recording of housing stock built by the company), education (recording of the education system within the company, schools if established), and culture and sport in a broad sense (inventory of the societies established within the companies). These characteristics are being addressed at the level of the complex as a whole, in a wider spatial context of the industrial landscape, and only exceptionally in the context of individual structures.

ii. Spatial and developmental characteristics
These characteristics relate to the level of industrial development on the one hand and the direct and direct influences of the industrialisation process on urban development and urbanisation. These characteristics are addressed at the level of a complex as a production whole – on the outside in the relationship to the cultural landscape and within the complex through relationships between the individual buildings and structures.
iii. Architectural and construction characteristics
Define the development of industrial culture as an autonomous building type, and, at the same time, the avant-garde of modern architecture, since industrial buildings introduced many novelties in the field of construction development and the use of new materials. These characteristics are addressed at the level of individual objects or structures.
iv. Technologic and technical characteristics
The technological and technical characteristics are marked by the development of new technologies and machinery, exemplified in inventions, new devices, patents, and, of course, products, which are the part of industrial heritage most directly indicating the scope of industrial development. These characteristics are addressed at the level of individual objects or structures, and their relations inside the industrial complex and the entire landscape.

25 Ifko, S. (2014). Industrial architectural heritage – re-evaluating research parameters for more authentic preservation approaches, in Architektúra & urbanizmus, vol. 48, no. 3/4, p. 136–155.

**Associations**

All relevant associations are described here, relating to other places, people, and events. They need to be systematically represented and a list of sources prepared (references, archives, interviews). Associations are highly important in determining the dimensions and connections of heritage in a wider context.

**Use**

Use in analysed on two levels: past use and present use.
When dealing with past use of the sites in the case of industrial areas, which are typically complex in terms of use, it is necessary to carefully study the role of all structures and buildings as due to the destruction of parts of production structures and removal of vital elements of equipment we often lose important testimonial elements and thus integrity of the heritage site.

When analysing past use, description of activities and presentation of technological characteristics in the case of production-related use should be prepared for all objects and structures.

Present use: description of the existing use in the place is described.

**Fabrics**

In this segment, the structure of the materials is described (what are the buildings and structures made of, and how). This part also presents the conditions of fabrics in the sense of their future applicability.

Basic information is presented on a single record sheet, complemented by the most important archive and pictorial materials.

4.2.2 Assessment of cultural significance

After the complex is analysed, it is time to summarize its values. These are evaluated at this level according to the cultural importance. An evaluation for its future potential is not included at this stage. Each complex is evaluated as a basic production and organisation unit and then in relation to the environment, which helps form it. Afterwards, the buildings or structures are evaluated together with their equipment and other material and intangible sources. The evaluation system is following the analytical methodology from the previous step. The exclusion of individual structures from the whole is unreasonable, but still extremely frequent. Indeed, the conservation of entire complexes is in most cases impossible; however, they should be analysed as a whole, while the protective measures should be designed in such a way that their testimonial value is truncated the least. This is why a comprehensive and interdisciplinary research approach is necessary, and hence the cooperation of many experts that can develop, only through teamwork, quality conservation programmes.

A summary of cultural significance is prepared at the end of this segment as a **Statement of Significance**, which stresses the heritage values as the basis for implementing the conservation and management process. The Statement of Significance is structured according to the characteristics of the analytical phase and the phase of identifying values.

4.3.2 The second stage of the process: Develop policy

This is part of the process establishing the methodological basis for efficient management implementation. Importantly, at this stage all factors and issues are defined in detail; they are the key for policy development and management plan preparation, as a result of this

segment. The second stage is divided into three stages as follows.

**Identify all factors and issues**

In this segment, it is necessary to include the Statement of Significance that was produced in the previous stage; to present information about the owner of the area concerned; to identify the physical, material condition of structures, conservation, level of authenticity; to identify owners' needs – defining the owners' requirements and needs in relation to the area; to describe the potentials of a place under "opportunities"; to describe, under "constraints", the limitations affecting identification of use and management of the place by heritage; to compile a list of all stakeholders' interests for the place.

**Fig 4:** In planning industrial heritage revitalisations and its integration into the life in post-industrial conditions it is important to include all stakeholders interested in or concerned with the heritage. A stakeholder workshop on the future of the Rudnik Trbovlje-Hrastnik company in Hrastnik. Photo: Sonja Ifko.

Develop policy

The policy development starts when all factors and issues are identified. This is the most important part of coordination, i.e. when all conditions are studied, and the parameters for preparing the management plan are agreed upon; they are developed in three groups: recommended uses - recommendations for the use and the rules for implementing these uses; conservation measures and interpretation - at this stage preservation activities for the whole heritage site, e.g. restoration works, maintenance together with interpretations plans, must be presented; finally, tourist potentials must be defined. In accordance with the development direction of the municipality, for each historic place the potential for use in tourism, direct activities, and possibilities and restrictions regarding tourist use are defined.

**Prepare a management plan**

Preparation of a management plan is undertaken in three steps that should be coordinated and prepared in parallel. It is necessary to provide a system of prioritised content in the place concerned, which must be coordinated among all stakeholders; the execution schedule of the envisaged activities must be defined. It is important to consider all stages of work on the project, i.e. from data and information acquisition to monitoring. Deadlines should be set to monitor the success of implementing the plan. The new step is a review of resources of programme implementation, and the dynamics in obtaining funding, which is essential for the execution. This is also the phase when the managers responsible for managing the sites need to be determined; these can be legal or natural persons (depending on the owner).

#### 4.3.3 The third stage of the process: Manage in accordance with policy

The essential part of a successful process is its efficient management, which adapts to the new requirements and needs, without putting the heritage at risk in any way, and without reducing its testimonial value.

An important accompanying activity of all stages is monitoring of the process and results. This will be particularly important when dealing with the first cases of industrial sites, as this will help us direct the activities in the individual places and optimise the methodology in the Slovenian context.

## 5 Discussion and conclusions

The role of the heritage today is changing, while its complexity and development factors help to create a complex system of relationships that require new approaches. In the past, conventional approaches to planning and top-down management were used, while participation is implemented today. Heritage sites are gaining in importance in social cohesion processes, but in practice this is being implemented slowly. These characteristics affect the revitalisation of abandoned industrial areas when production ends, either completely or only partially. If they are appropriately included they can become the key generators of protection of basic heritage values and thus generators of new social values as industrial heritage sites are places of difficult economic and social conditions and in need of ecological remediation. Both processes can include former employees, while naturally the legal basis and methodological frameworks of protection and revitalisation approaches must be provided. These are the key conditions that allow for long-term preservation of heritage, which highlights authenticity and integrity of heritage as the key values and on its basis builds new development stories that are undoubtedly the only key for future survival of complex heritage sites, i.e. industrial heritage sites.

Due to its specificity, industrial heritage allows for and requires the development of new approaches to be followed in Slovenia as well. The key role of interdisciplinary cooperation and inclusion of all interested stakeholders already in the phase of analytical research work should be again emphasised. This does not mean that the significance of heritage attributes is reduced – on the contrary; the knowledge of these values is the basis for a dialogue among all stakeholders from the very beginning of the project design process, which is the basis for integration of heritage in the current life and thus survival under the new conditions.

Coalmine Rudnik Trbovlje Hrastnik. Photo: Nace Nagode.

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# 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, abounded 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, abounded 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 epoch[1]. Within this framework the revitalization can be explained as a variety of features and options that allow that abounded space serves contemporary purposes, while protecting past in the future[2]. 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 rules[3].

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 neglected[4]. 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 regeneration[5]. 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.

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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 Bliek, 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, abounded 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 charter[8]. 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 investments[9]. 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 landmark[10]. 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 recognisability[11] (Figure 1). The protection of these specific structures contributes to the improvement of urbanity and the visual identity of the wider region[12]. 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 cities[13].

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 braunfild 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.

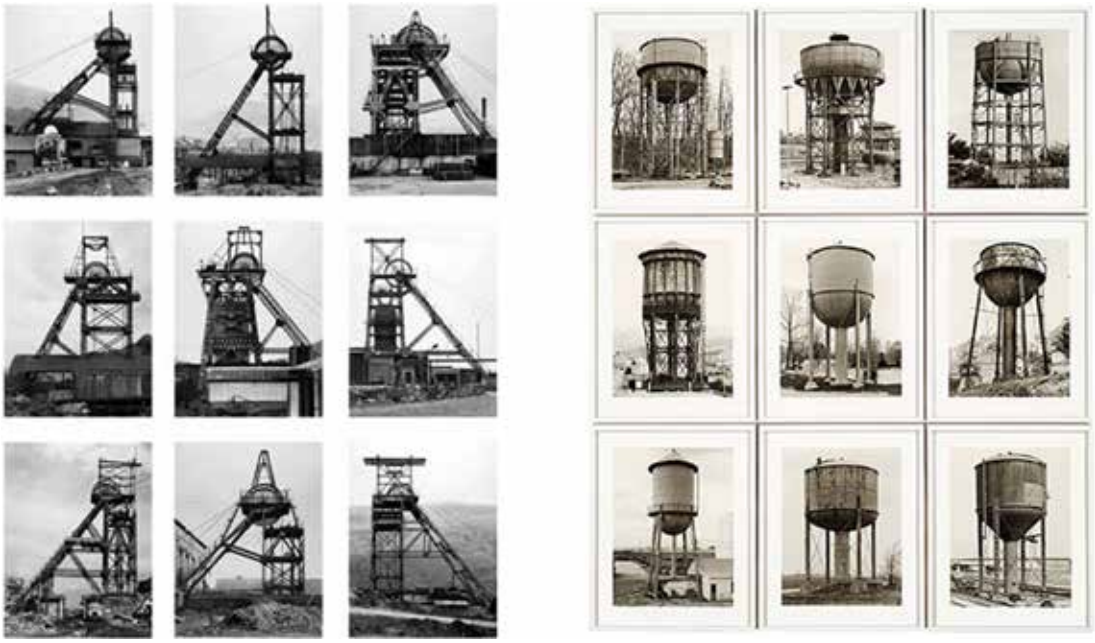

**Fig. 1:** Aesthetic potential of transient industrial structures: Typology of winding towers – left, Typology of water tanks – right. Source left: Becher, B., & Becher, H.(1980). Water towers, Retrieved January 19, 2011, from http://collectingseminar.wordpress.com/2008/11/03/bernd-and-hilla-becher-collected-industrial-age-calvinist-holy-sites-nick-wylie/berndandhillabecher01/). 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 regeneration[14]. Although, urban regeneration is framed by sustainability as "youngest" urban paradigm[15], it seeks to integrate aspects, aims, and spaces of "older" paradigms providing liveable places[16]. Furthermore, urban regeneration of waterfront brownfield emphasises the need for this kind of integration providing "soft infrastructure" and objectification of different worlds into coherent whole[17].

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 Edensor[18] 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: Policyand 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 Mihajlov[19], 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 character[20]. 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 experience[21].

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 thoughts[22], while place is center of action and intention[23] 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 abounded 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 abounded 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-Schulz[26], 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 sensations[27].

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, abounded 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 memory[30]. Similarly, Castello emphasizes the importance of memories for people's experience of space, which makes the memory a significant part of its structure[31]. Furthermore, the memory as a component of the place structure can affect "good" or "bad" image which that place evokes[32].

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 Danube[33].

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 many[34]. 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 90[35]. 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 Serbia[37]. 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 transformations[38]. 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 development[39]. 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 process[40].

The period after 1990ş 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 environment[41]. These initiatives, allegedly driven by the idea of absolute connectivity/efficiency/mobility[42],

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 heritage[43]. 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-architecture[44].

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).

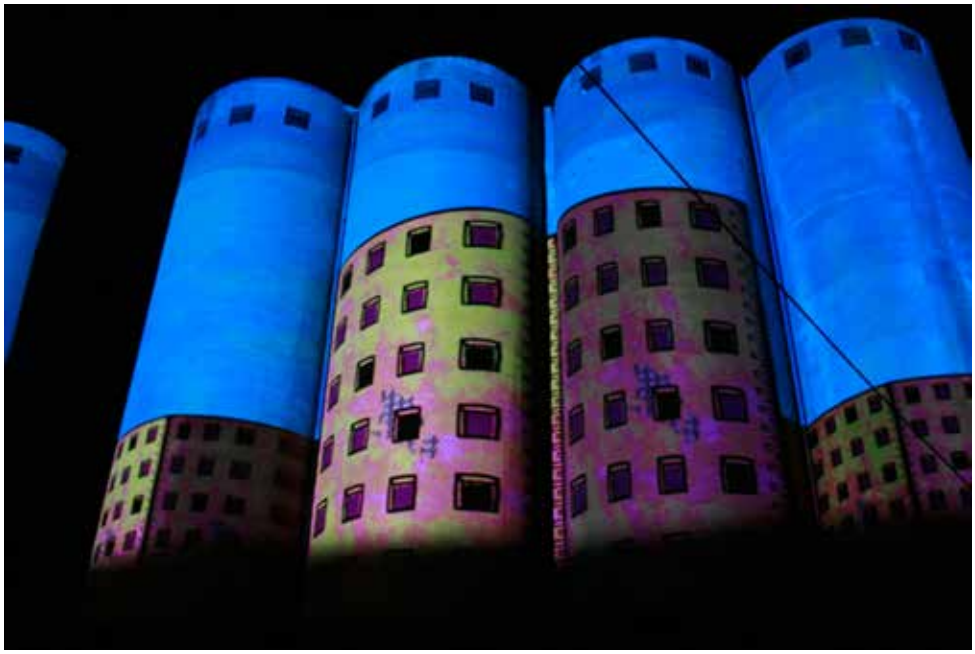

**Fig. 9:** Projection on Silos during the Mikser festival.

## 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 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.


Ironworks Jesenice. Photo: Sonja Ifko.

Aida Idrizbegović Zgonić, Jasenka Čakarić

# 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[1].

The process of modernization was accompanied by development of traffic conditions

1 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.[2] 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 asses 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

2 Hoernes, Dr. M. (1904). Neunter Band: „Wissenschaftliche Mitteilungen aus Bosnien und der Herzegowina. Herausgegeben vom Bosnisch-Herzegowinishen 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%[3] 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

3 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.[4] 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, irretrievable 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[5].

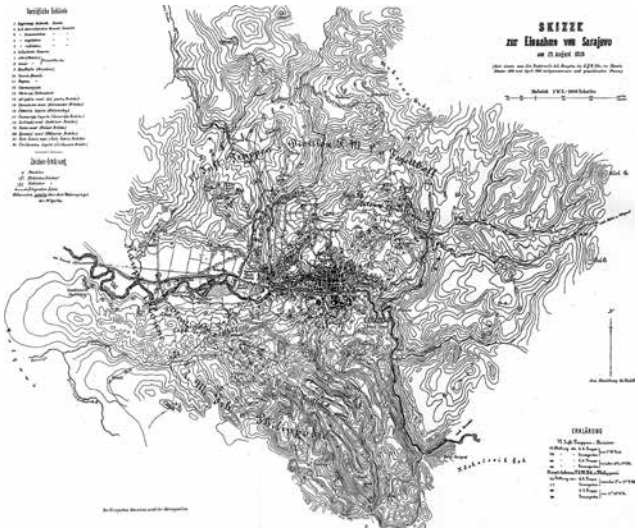


**Fig. 3:** Sarajevo urban core during the Austro-Hungarian rule, 1878.

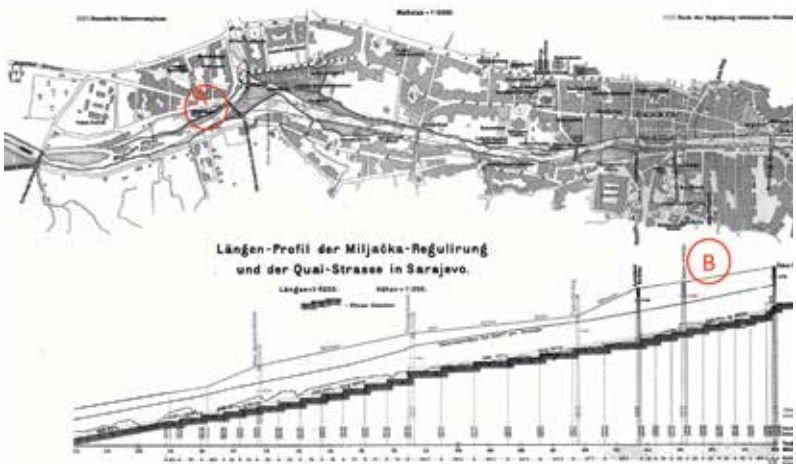


**Fig. 4:** Plan of river banks regulation and profile of the river incline form east to west with a growing number of public buildings built alongside, map from 1879.

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 $km^2$ [6].

## 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 electic 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).

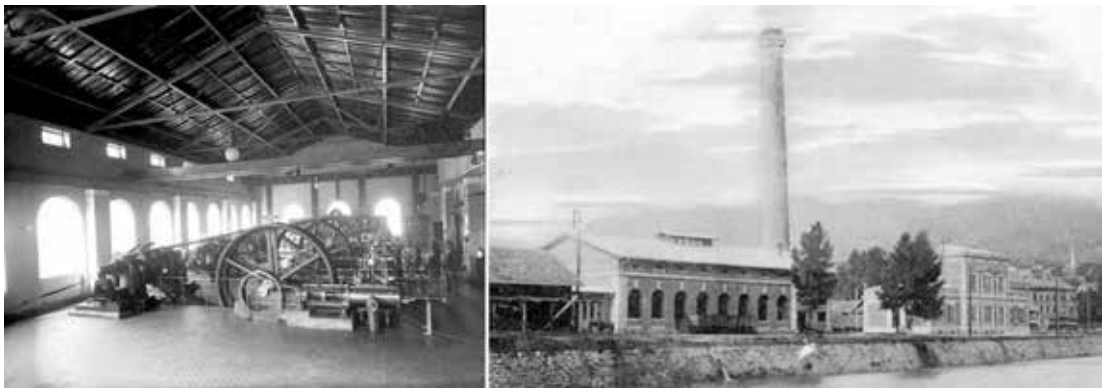

**Fig. 5:** a) Electic power plant on Marijin Dvor shows great consideration towards the urban city context – skilfully shaped in harmonius horizontal and vertical accents; b) Original turbines and equipment shown on an archive photo here, not existing in situ today.

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

6 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[7].

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 coffe shop called Šabanova kafana and bathing area.

7 Decision of the Comisson to protect National monuments of Bosnia and Hezegovina, 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 soot 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 spreas 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[8].

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.

8 http:// UNESCO recommendations on HUL (2011). http://portal.unesco.org/en/ev.phpURL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html.

Water tower in Tovarna dušika Ruše.
Photo: Miran Kambič, source INDOK Centre, MK RS.

Stephen Hughes

# TICCIH, ICOMOS & The World Heritage

**Summary**

*The International Committee for the Conservation of the Industrial Heritage (TICCIH) has some 450 individual members in more than 50 countries. It is a special adviser to ICOMOS on potential industrial world heritage sites. TICCIH produced the Nizhny Tagil Charter on the Industrial Heritage in 2003. In 2011 a shorter text inspired by the Charter was adopted by the 17th ICOMOS General Assembly in Paris as the Joint ICOMOS – TICCIH Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes. TICCIH has produced four World Heritage Studies in association with ICOMOS and part of the joint action plan being finalised to execute the TICCIH-ICOMOS Memorandum of Understanding, itemises further joint working in this and other areas of the industrial heritage.*

*It may seem logical, as at present being discussed within ICOMOS, to create a new ISC on the Industrial Heritage for effective working on this important topic. However, it would seem counter-productive if ICOMOS does not continue to support the available flow of support and knowledge available from TICCIH for the World Heritage process and for the industrial heritage generally. The new joint TICCIH-ICOMOS Action Plan ensures the continued effective flow of the expert advice on the industrial heritage to ICOMOS.*

## 1 Introduction

The International Committee for the Conservation of the Industrial Heritage (TICCIH) is the world organisation representing industrial heritage and is special adviser to ICOMOS on industrial heritage.

TICCIH has some 450 individual members in more than 50 countries. Thousands more are part of the TICCIH network via affiliation with national societies such as the Association for Industrial Archaeology (AIA) in Britain; the Society for Industrial Archaeology (SIA) in America, and most recently of the Industrial Heritage Committee of the Cultural Relics Academy of China.[1]

TICCIH's goals are to promote international cooperation in preserving, conserving, investigating, documenting, researching, interpreting, and advancing education of industrial heritage. This broad field focuses on the remains of industry – industrial sites, structures and infrastructure, machinery and equipment, housing, settlements, landscapes, products, processes, embedded knowledge and skills, documents and records, as well as the use and treatment of this heritage in the present.

Industrial heritage includes not only the remains of the Industrial Revolution, but also the traditional precursors from earlier centuries that reflect increased technical specialization, intensified productive capacity, and distribution and consumption beyond local markets, hallmarks of the rise of industrialization. It also includes the social and spatial archaeology of workers' & owners' houses, settlements, schools, churches and chapels.[2] Industrial heritage also includes the planning, policy-making and rehabilitation necessary to manage

1 Martin, P. E. M. (2016). Global Perspectives China 2016. Paper given in Shanghai on November 19 , 2016.
2 Hughes, S. R. (2014). Industrial Chapels. Retrieved from: http://www.welshchapels.org/welsh-chapels/industrial-chapels/ & Hughes, S. R. (2012). 'The Architecture of Nonconformist Christian Religion and National Identity' in P. Bellamy & G. Montpetit (Ed.), Religion: Beliefs, Theories and Societal Effects (New York, Nova), 103 -42.

these remains in the face of deindustrialisation.[3]

This has led to TICCIH being a special adviser to ICOMOS on potential industrial world heritage sites and assisting with the assessment and designation of these sites throughout the world. Although not a scientific committee, TICCIH attends these meetings in an advisory capacity.

TICCIH nominees serve on Panels, review nominations and recommend experts for evaluation missions. While we are an external and independent NGO, we have a strong opportunity to influence policy and practice within ICOMOS and other bodies, especially in the realm of World Heritage. In 1994 TICCIH was represented at the UNESCO Canal Experts in Canada which introduced the use of 'Technical' criteria as valid for the World Heritage. It also added the first industrial heritage annex to the by World Heritage Guidelines with one on the inscription of Canal Historic Transportation Corridors.[4] Its conclusions were confirmed in 2011 another meeting at Wuxi in China at which both TICCIH and ICOMOS had represention.[5]

## 2 History of working with ICOMOS on the World Heritage

The first initiative for creating the only global organisation for the study, interpretation and preservation of our industrial heritage had its origin at a meeting held in 1973 at the Ironbridge Gorge Museum in the United Kingdom. This brought together Industrial Archaeology practitioners, both professionals and amateurs, from all over the world to discuss the preservation of the industrial heritage.[6]

**Fig. 1:** TICCIH Representative of ICOMOS on World Heritage Evaluation.

3 Hughes, S. R. (2009). Diversity in structure: evidence for globalisation and local interaction in the archaeology, architecture and cultural tourism of industrial communities in Wales. In Paul Bedford, Marilyn Palmer & Roger White (Ed.), Footprints of Industry: Papers from the 300th anniversary conference at Coalbrookdale, 3-7 June 2009, BAR British Series 523 (Oxford, 2010), 127-50.

4 Hughes, S. R. (1996). The Industrial Archaeology of Canals. In E. von Baeyer (Ed.), World Heritage Convention/ Heritage Transportation Canal Corridors/ Proceedings, International Meeting of Experts, 15-9 September, Chaffeys Lock, Ontario, Canada. Ottawa: Parks Canada, Section 4.

5 Hughes, S. R. (2011). Authenticity and Conservation in World Heritage. In ICOMOS China, Wuxi Forum on the Conservation of China's Cultural Heritage, Conservation of Heritage Canals: Material for Academic Exchanges. Wuxi: ICOMOS China, 9-13.

6 Smith, S. B. (2012). The work of TICCIH. In J. Douet, Industrial Heritage Retooled: The TICCIH guide to Industrial Heritage Conservation (section 31). Lancaster: Carnegie.

Most of the delegates came from Europe, particularly Germany and the UK, together with a few from the United States. One of the most valuable functions of this international membership became quickly established in organising five-day peripatetic meetings. These were held every two-three years in different countries across the world.[7] The first was held in Bochum, Germany, in 1975 and in Sweden two years later saw an increase in the spread and number of delegates including from eastern Europe. It was now a tri-continental organisation with the addition of delegates from Japan.

TICCIH was formally established as an international organisation in 1973. Congresses, or General Assemblies, have since been held more or less every three years since then, in Grenoble, Lowell and Boston in the USA, Vienna and Vordernberg, Brussels, Barcelona-Madrid and Montreal-Ottawa and Athens-Thessalonica. The Millennium Congress was held in London with tours and discussions throughout the UK, meetings were held in Moscow and Ekaterinburg in the Russian Federation in 2003, Terni, in Italy, in 2006, and in Freiberg, Germany in 2009. The 2012 the TICCIH Congress first went to Asia, when it was held in Taiwan. In 2015 the General Assembly returned to Europe with a meeting in Lille and the first Congress in South America will take place in Chile.

**Fig. 2:** Canals International Experts Meeting Canada 1994.

Two sets of publications arise from these meetings which are arranged around a series of thematic meetings. One is a set of national reports from all the constituent members of TICCIH. A second are the Conference Reports which contain invaluable comparative work from countries around the world. These have just all been digitised and are now one of the resources available through online.[8] Each constituent country of TICCIH has either a National Committee or Correspondent.

TICCIH has special sections which are particularly valuable in developing a comparative knowledge of each significant part of the world's industrial heritage. These include Agriculture and Food Production, Bridges, Communications, Hydroelectricity and

7 Hughes, S. R. (1992). Consideration of the Role of Field Recording and Archaeology in Developing the Historical Understanding of Early Railway Development. In G. Vanderhulst (Ed.), Industry, Man and Landscape/ Industrie, Homme et Paysage (TICCIH-Belgium, Brussels), 76-83. Hughes, S. R. (2009). The Comparative Regeneration of the Blaenavon and Pontcysyllte World Heritage Areas. In H. Albrecht, A. Kierdorf, N. Tempel (Ed.), Industrial Heritage – Ecology & Economy: XIV. International TICCIH Congress 2009 in Freiberg, Germany, Selected Papers – INDUSTRIE archäologie 10, 54-9. Retrieved from https://works.bepress.com/the-internationalcommitteeforthe-conservationoftheindustrialheritage/

8 TICCIH General Assembly Proceedings (1972-2015). Retrieved from https://works.bepress.com/the-internationalcommitteefortheconservationoftheindustrialheritage/

Electrochemical industry, Metallurgy, Mining and Collieries, Mints, Polar Region, Railways, Textiles and Tourism.[9] These Sections occasionally organise conferences, and other intermediate conferences are arranged by individual countries or groups of countries.[10]

Four times a year TICCIH publishes a substantial online Bulletin which is published in digital form and emailed to all memberships, the current and many back issues are freely available online.[11] The Bulletin includes papers on topics of interest to members including sites and regions, routes, cultural landscapes, museums, architecture, urban planning, archaeology, theory and preservation advocacy.[12] It also includes conference reports, book and exhibit reviews, research reports and a calendar of events. TICCIH has also published a well-received book on industrial archaeological conservation called Industrial Archaeology Re-tooled.[13]

**Fig. 3:** Conservation of Heritage Canals Meeting China 2011.

TICCIH has had a very long-term relationship with ICOMOS. TICCIH officially affiliated with ICOMOS in 1985. Henry Cleere, of the ICOMOS World Heritage Secretariat, attended TICCIH Board Meetings in the early 1990s to develop TICCIH's role in advancing the industrial World Heritage. A formal agreement was signed between ICOMOS and TICCIH in 2000 at the Millennium Congress in London whereby ICOMOS recognised TICCIH as an Expert Committee on the industrial heritage. This agreement was renewed in 2015. The international industrial journal Patrimoine de l'Industrie: Industrial Patrimony was founded and edited by the former TICCIH President Professor Louis Bergeron. Its scientific committee has representatives from both TICCIH and ICOMOS.

The intense co-operation from the 1990s was driven by a realisation that the subject-matter and spread of the World Heritage was far from balanced. To address this need for a Global Stategy was discussed and the influential report The World Heritage List: Filling the Gaps – an Action Plan for the Future was published.[14] The publication recognised the

9 Hughes, S. R. (2014). The Evolution of Early Structural Iron in China, Russia and Wales. In Patrimoine de l'industrie/ Industrial Patrimony, 31, 2014/1, 77-108

10 Retrieved from http://ticcih.org/activities/sections/

11 TICCIH Bulletin (2012-16). Retrieved from https://issuu.com/ticcih/docs . TICCIH Bulletin (2016.4). Retrieved from http://ticcih.org/ticcih-bulletin-74-4th-quarter-2016-published

12 Hughes S.R. (2016). The Early Steam Engine & Locomotive: a story in global exchange, TICCIH Bulletin 74.4, 6-7.

13 Douet, J. (2012). Industrial Heritage Retooled: The TICCIH guide to Industrial Heritage Conservation. Lancaster: Carnegie.

14 Jokilehto, J., Cleere, H., Denyer, S. & Petzet, M. (2005). The World Heritage List: Filling the Gaps – an Action Plan for the Future: An Analysis by ICOMOS. Paris: ICOMOS. Retrieved at http://openarchive.icomos.org/433/1/

geographic, chronological and thematic biases of the existing World Heritage and set out a programme to rebalance the World Heritage List and to fill the gaps The Industrial Heritage was identified as one of the areas under-represented and this largely remains the case. By 2015 about 67 of the some 1,000 built World Heritage Sites included a significant element of World Heritage. A programme of World Heritage Studies was instituted to facilitate World Heritage nominations in areas of significant gaps in the List.

## 3 World Heritage Studies

The World Heritage Studies that TICCIH has produced in collaboration with ICOMOS contribute to the implementation of the World Heritage Committee's Global Strategy for a balanced World Heritage List by identifying gaps in the functional, industrial, engineering, commercial and technological areas.[15] The Global Strategy has been in use for twenty-four years so it is an appropriate time for a review of what has been achieved. About half of the twenty studies produced so far as part of this strategy concern the functional and social elements of the industrial heritage.[16] These, and an earlier general industrial archaeological list, have provided the context for the acceptance of almost all industrial archaeological sites nominated by national governments for inscription on the World Heritage List in the current century.

The Global Strategy was adopted by the World Heritage Committee in 1994. Its aim was to ensure that the List reflects the world's cultural and natural diversity of outstanding universal value. Industrial archaeology was felt to be one of the areas under-represented on the List and negotiations at that date between Professor Henry Cleere, World Heritage Co-ordinator of the International Committee for Sites and Monuments (ICOMOS), and Professor Louis Bergeron, then President of the International Committee for the Conservation of Sites and Monuments (TICCIH), resulted in TICCIH being recognised as specialist advisor on the Industrial Heritage to the World Heritage Committee. Ten such Functional and Industrial Archaeology studies have now been prepared for the World Heritage Office (of ICOMOS) and can be found on the ICOMOS web site.


**Fig. 4:** TICCIH's Congress Proceedings are now online.

Monuments_and_Sites_12_Gaps.pdf

15 Hughes, S. R. (2012). Thematic World Heritage studies. In J. Douet, Industrial Heritage Retooled: The TICCIH guide to Industrial Heritage Conservation (section 24). Lancaster: Carnegie, 2012.

16 The TICCIH-ICOMOS World Heritage Thematic Studies on Canals, Bridges, Industrial Settlements and Collieries can be retrieved at http://www.icomos.org/en/what-we-do/disseminating-knowledge/publicationall/monographic-seriges/198-thematic-studies-for-the-world-heritage-convention .All the World Heritage Studies can be found here.

## 4 International industrial archaeology studies

Pressure from non-European governments to ration the number of European palaces, cathedrals and castles appearing on the World Heritage List helped prompt a search for areas where European developments were truly of international importance.

In 1986, the proposed nomination of the late-eighteenth textile mills at New Lanark in Scotland in the United Kingdom, associated with the social experiments of Robert Owen and David Dale, failed at the first attempt because of a lack of comparative data. There was an ensuing confusion when other European governments considered they had comparable sites concerning early attempts at model social engineering, as with the Guise model worker community at Aisne and also other worker communities such as those at Le Cruesot and Mulhouse

Other nomination attempts failed because of a lack of cognisance of how the World Heritage Criteria would be applied to specific types of industrial monuments, as was the case of Thomas Telford's and Robert Stephenson's technologically pioneering Menai Bridges in Wales, United Kingdom. The States Party had failed to appreciate that both bridges would fail to be selected for World Heritage status on grounds of 'authenticity' as it was the original form of the iron structures that made the structures of primary international importance and in both cases this element of the sites had been replaced. An alternative suggestion was that the Conwy Bridges, retaining these critical features and attached to one side of an existing World Heritage Site, be nominated instead and this was what the TICCIH Board recommended to the World Heritage Committee as part of the first Industrial Monuments List in 1994.

The significance of such international comparative work can be indicated by what happened to the original industrial archaeology study and list. TICCIH organised an International Industrial Landmarks exercise with a request for a list of five sites, or landscapes, from each country. Great Britain, where the first industrial revolution of the modern era started, can be taken as an example of how this process was activated. The Association for Industrial Archaeology (AIA), meeting at Ironbridge in 1993, helped select five examples from each of Scotland, England and Wales which were later refined by national groups within the United Kingdom. From Wales they were Blaenafon Ironworks and Landscape, the international iron- making capital of Merthyr Tydfil, the intact Stephenson and Telford tubular and suspension bridges at Conwy, Dinorwig Slate Quarries and Parys Mountain Opencast Coppermine. In England the sites and landscapes included Cromford Cotton Mills and associated mill communities, Chatterley Whitfield Colliery, Albert Dock at Liverpool, the Cornish tin and copper-mining area around Penwith and Kew Bridge Engines in London. In Scotland the list included the Forth Rail Bridge, Dallas Dhu Whisky Distillery at Forres, New Lanark Cotton Mills, Lady Victoria Colliery at Newtongrange and Biggars Gasworks. Similar exercises were carried out in countries across the world.

The author, as TICCIH National Representative, co-ordinated this work in the United Kingdom and consulted authorities and experts throughout the country in compiling dossiers on each of these sites and sending them to Guido Vanderhulst, then the Secretary for TICCIH Industrial Heritage Landmarks, based in Brussels.

The list of those they considered the most important (that were not already World Heritage Sites) was forwarded to the World Heritage Office of ICOMOS during 1994. At ICOMOS, the work was organised by Professor Henry Cleere, then World Heritage Co-ordinator. At the end of 1994, the list of 33 recommended industrial archaeology sites went forward to the World Heritage Committee.

The Board of TICCIH considered that British sites were of fundamental importance because of their part in the world's first Industrial Revolution with its profound international influence. Therefore no less than nine structures and landscapes that formed part of that process were situated in Great Britain, that is over a quarter of the final number of sites

submitted to the World Heritage Office. These included Blaenafon Ironworks, New Lanark Mills and village, Cromford Mills and associated mills and villages and Albert Dock in Liverpool, all of which were subsequently successfully inscribed on the World Heritage List in the period 2000-2004.


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**Fig. 5:** TICCIH publishes a substantial Bulletin on international industrial heritage issues four times a year.

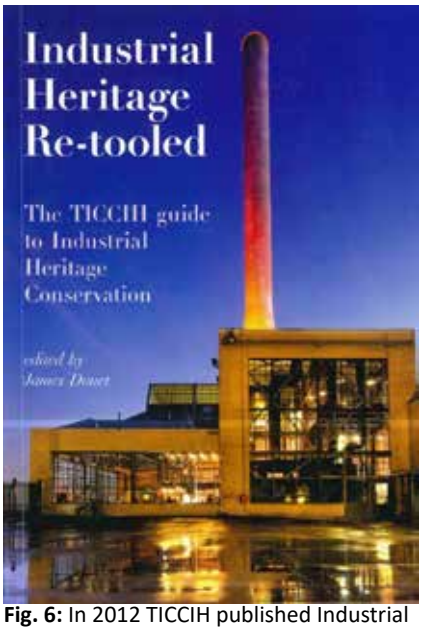


**Fig. 6:** In 2012 TICCIH published Industrial Heritage Re-tooled.

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Internationally, all subsequent industrial archaeology nominations for the World Heritage List have also been based on inclusion in the framework in the 1994 general list prepared by TICCIH, or the subsequent single-industry lists, with the exception of the British nomination of the Saltaire Woollen Mills and worker settlement.

The international recommendations arising from this first general Industrial Archaeology TICCIH list, outside Britain, included the four nineteenth-century canal lifts on the Canal du Centre and their surroundings (Belgium: 1998); the Verla Groundwood and Board Mill (Finland: 1996); the powered pumping-stations of the Netherlands including the wind-powered installations at Kinderdijk-Elshout (1997) and the Wouda Steam Pumping Station of 1920 at Lemmer in Friesland (the largest steam-powered pumping engine ever built: inscribed 1998); the Zollverein Coal Mine Industrial Complex at Essen in the Ruhr (Germany: 2001) and the Mining Area of the Great Copper Mountain in Falun (Dalarna, Sweden: 2001). The blast-furnaces at Völklingen in the Saarland of Germany were inscribed at the same time as the TICCIH Board completed the list with the furnaces on it.

In all, one third of the 33 sites and landscapes on the 1994 TICCIH list of outstanding industrial monuments have subsequently been inscribed as World Heritage sites. Nine on that list were in the United Kingdom, eight in Germany, three each in Belgium and the Netherlands, two each in France, Sweden and Denmark and one each in Japan, Russia and

Finland. Internationally, the sites and landscapes yet to be inscribed from Germany include the Potash Mines at Bleicherode, Thuringia; the AEG Turbinehall in Berlin; the sugar refinery at Oldisleben, Thüringen; the warehousing in Hamburg Harbour; the Göltzschal Railway Viaduct at Mylau in Saxony and the Freiberg Brassworks Mining and Cultural Landscape, Halsbrücke.

In Belgium, the early nineteenth-century coalmining town and mine of Bois du Luc in Wallonia, the Noeveren Brickworks industrial landscape at Boom and the Tour et Taxis goods interchange station in Brussels were noted as being of importance in 1994. In Holland, the multiple Cornish beam-engines of the Cruquius Steam-powered Pumping Station were commended along with the other two sites and drainage landscapes that have since achieved recognition as World Heritage Sites. A second site commended from Sweden was the Dannemora Iron-ore Mines and Settlement in Uppland as were the enlightened socialist settlement of the Guise factory at Aisne in Picardy and the Menier Chocolate Factory at Noisel, in France. In Denmark, the Nivaagaard Brickworks at Niva in north Copenhagen and the Carlsberg Breweries in Copenhagen were also noted for their international importance. Finally, but not least, the Nizhny-Tagil Museum Steelworks in the Sverlovsk Province of the middle Urals of the Russia Federation was recognised for the fact that it was one of Peter the Great's early eighteenth-century multi-blast furnace ironworks with developed workers' settlements attached.

The 1994 General Industrial Archaeology list has underpinned the formation of the 'Tentative Lists' of proposed World Heritage Sites formulated by each national government. This has been especially true in Europe where the World Heritage Office has advised States Parties that this is the area that the rest of the world perceives as being of profound importance in world history.

## 5 TICCIH/ICOMOS comparative thematic studies

There is a natural tendency for all governments and nations to think that their own monuments are the best in the world but it is equally difficult to achieve a balanced objective assessment of the relative merits of various candidates that is acceptable to all parts of the international community. The 1994 general list of industrial monuments was felt to be too broad in its scope and so in 1996 TICCIH coordinated the first of a series of single-industry comparative thematic studies in which criteria were developed so informed comparisons could be drawn between widely-dispersed sites from around the world.

The thematic studies are usually arranged in two sections, first an assessment of the criteria that are deemed to be most relevant to the subject area under study, followed by a list of some of the most significant monuments and landscapes of the studied type that the criteria can be applied to. The first section has latterly been considered to be the more relevant by the World Heritage Centre of ICOMOS.

The first of the World Heritage Studies, The International Canal Monuments List, was prepared by the author in 1996 after a UNESCO Canal Experts Meeting hosted by Parks Canada.[17] It was more prescriptive than later studies in giving a very long list of categories of structures and canal lines related to waterway construction and use that could be nominated for World Heritage Status. This first World Heritage Study used widespread international consultation to assess which of the canal monuments might be the most important and so to be most worthy of World Heritage Status. However, national governments, the States Parties, determine which sites and landscapes should actually be put forward for nomination.

17 Hughes S.R. (1996) (ed.). The International Canal Monuments List, The International Committee for the Conservation of the Industrial Heritage/The International Council on Monuments & Sites, Paris. Retrieved from http://www.icomos.org/en/what-we-do/disseminating-knowledge/publicationall/monographic-series/116-english-categories/resources/publications/235-international-canal-monuments-list

Subsequent thematic World Heritage Studies have not had international experts scoring sectional lists of possible prospective World Heritage sites. Instead, the sectional establishment of criteria is followed by a section of nine significant examples of the criteria applied to prominent sites and landscapes drawn from within the theme being covered. These examples are not prescriptive and the criteria established can equally be applied to other outstanding sites from across the world nominated by the national States Parties. It is important, and indeed expected by the World Heritage Centres of ICOMOS and UNESCO, that examples of the sectional criteria are applied to sites spread across the world and not confined to any one continent.

Formal nomination documents such as those for Blaenavon and the Derwent Mills have cited the 1994 general studies, and the subsequent single-industry studies, as contextual information to ensure that their nominations were accepted by the international community.

The studies concerned with functional archaeology and industrial archaeology are The International Canal Monuments List (1996); Context for World Heritage Bridges (1997); Railways as World Heritage Sites (1999); Les villages ouvriers comme éléments du patrimoine de l'industrie (Workers settlements as part of the industrial heritage - 2001); The International Collieries Study (2003), Les paysages culturels viticoles (Wine-growing Cultural Landscapes - 2004) and most recently a study of Heritage Sites of Astronomy and Archaeoastronomy in the context of the UNESCO World Heritage Convention (by ICOMOS and IAU, 2010).[18] Sometimes governments have made almost immediate use of these studies to achieve the inscription of monuments, as did France and Belgium with the Canal du Midi and Canal du Centre, Germany with Zollverein Colliery and Hungary with vineyards.[19]

## 6 Future work and methodology

The methodology for carrying out the TICCIH/ICOMOS thematic World Heritage studies has now become well established. Those preparing national nominations within the field of industrial archaeology in countries as diverse as China, Canada, France and Britain have acknowledged how useful these studies have become in providing guidance that rises above inevitable national perceptions in helping establish relevant elements of Outstanding Universal Value and in writing the significant International Comparative Significance sections of nomination documents.[20] Equally, the assessors of the ICOMOS and UNESCO World Heritage Centres, and the field and desk mission experts evaluating nominations, expect those preparing World Heritage Site Nominations to have referred to the relevant thematic World Heritage Studies and for the estimation of Outstanding Universal Value (OUV), and the assessment of Significance in the International Comparison section, to be linked to it.

## 7 Staged programme for the resumption of ICOMOS-TICCIH world heritage studies on the industrial & technical heritage in 2016

The ICOMOS Global Strategy & the Filling the Gaps Study identified the Industrial Heritage as being under-represented on the World Heritage List.

The TICCIH Board has agreed to resume a structured programme of ICOMOS-TICCIH World

18 Hughes S.R. (2003). The International Collieries Study, The International Committee for the Conservation of the Industrial Heritage/The International Council on Monuments & Sites, Barcelona/Paris. Retrieved from http://www.icomos.org/en/what-we-do/disseminating-knowledge/publicationall/monographic-series/116-english-categories/resources/publications/226-the-international-collieries-study

19 Hughes, S. R. (2004). The International Collieries Study: Part of the Global Strategy for a Balanced World Heritage. Industrial Archaeology Review, November 2004, Volume XXVI, Number 2, 95-111.

20 Hughes, S. R. (2007). The International Canal Monuments Study: part of the Global Strategy for a balanced World Heritage List. Patrimoine de l'Industrie: Industrial Patrimony, 2007, Volume 18, 19-32.

Heritage Studies and its Secretary, Stephen Hughes, and the TICCIH Editor James Douet, have been charged with developing a detailed programme in collaboration with ICOMOS.

Between 1996 and 2004 four industrial World Heritage Studies were produced by TICCIH in co-operation with ICOMOS: on Canals, Bridges, Industrial Settlements and Collieries and, according to international feedback these have considerably facilitated inscriptions in those categories.

Feedback from the UNESCO Technical & Scientific Experts Meeting in London was that TICCIH could helpfully produce a comprehensive set of studies covering the industrial and technical World Heritage.

During the ongoing UNESCO Twentieth-century Experts Meeting in Los Angeles the chair Sheridan Burke asked if TICCIH could produce a set of studies to contribute to a further assessment of the Twentieth-century Heritage. Ron Van Oers, the UNESCO representative at that meeting, stated that he was convinced of the worth of the ICOMOS-TICCIH World Heritage Studies and the value of such a course of action. TICCIH has representatives in some 50 counties across all continents and it will use this network , and its substantial number of expert Special Interest Sections, to ensure a wider consultation and input into these Studies.

These special thematic reports, the first by TICCIH have been used by ICOMOS when assessing potential new world heritage sites and include the TICCIH World Heritage Studies on Canals, Bridges, Industrial Settlements and Collieries. There is a great potential for expanding these specialised reports as one of the main benefits that TICCIH brings to any individual or country working in a specific field is the objectivity of an international approach. TICCIH has affiliations with other international bodies as well as with ICOMOS, and held a joint conference with the International Committee for the History of Technology (ICOHTEC) in 2010. It is also working with the modern Asian Architecture Network (mAAN) which in 2011 held a conference in South Korea. Although TICCIH endeavours to work largely with international bodies, it actively supports cross-border projects such as the European Route of Industrial Heritage (ERIH).[21]

This work came to fruition in 2015 when no less than 8 additions to the World Heritage List representing the functional, agro-industrial, and industrial heritage were added:

- Champagne Hillsides (France)
- Climats, Terroirs of Burgundy (France)
- Speicherstadt and Kontorhaus District (Germany)
- Sites of Meiji Industrial Revolution (Japan)
- Aqueduct of Padre Tembleque Hydraulic System (Mexico)
- Rjukan-Notodden Industrial Heritage Site (Norway)
- Forth Railway Bridge (United Kingdom)
- Fray Bentos Industrial Landscape (Uruguay)

The first two of these were added as a result of the contextual evaluation on the specifics for the Outstanding Universal Value (OUV) of this area of study produced in one of the twenty World Heritage Studies now available. The context for the nomination of the Forth Railway Bridge was facilitated by the World Heritage Studies on both Bridges and Railways.

Documents have already been prepared within TICCIH analysing the full-range of sectional studies required for the Industrial Heritage sector. From that, and an awareness of where international work is on-going the following studies are likely to be proposed as part of an initial two-year programme.

I. **The Hydro-electric Industry:** this would contribute substantially to the Twentieth-century study and a series of international meetings and consultations are already way as part of the

21 Martin, P. E. M. (2017). Global Perspectives China 2016. Powerpoint given at a Chinese Seminar.

TICCIH Hydro-electric Special Interest Group's Study;

II. **The Textile Industry:** one of the main industries of the eighteenth & nineteenth-century industrial revolution. A draft World Heritage Study has already been prepared as a result of successive international meetings of the TICCIH Special Interest Section on Textiles and this study is due to be finalised during a further international meeting in 2013;

III. **The Copper Smelting Industry:** another key industry of the Industrial Revolution. It has been possible to obtain funding from the Leverhulme Trust for a series of international meetings across three continents and a draft study will be further refined by consultation with further experts in TICCIH;

IV. **The Iron & Steel Smelting Industry:** one of the two most central industries of the Industrial Revolution. Some initial funding is likely to be available from the Ruhr in Germany and a wider consultation within TICCIH will take place.

V. **The Copper-mining Industry**: An initial study will cover this large-scale industry from the Bronze-Age and Medieval periods and into the early twentieth-century.

VI. **The International Slate & Building-stone industry:** Two initial international conferences have taken place with representatives of the world's three largest national producers and further study was approved by the TICCIH Mines section.

VII. **The Water-supply Industry:** An industry critical to nineteenth and twentieth-century industrialisation and where an international study is beginning.

This is an initial series of resumed studies. Two-three of these can be finalised by TICCIH and passed to ICOMOS in 2016. Obviously work will initially concentrate where there is funding available for international consultation using the TICCIH and other networks. Further progress on a fully comprehensive set of studies will be at least partly dependent on the availability of further funding.

## 8 Nizhny Tagil Charter for the Industrial Heritage (2003)

At the Russia congress in 2003, TICCIH president Eusebi Casanelles signed the Nizhny Tagil Charter for the Industrial Heritage with the congress host, Eugene Logonov, and after numerous deliberations this approach was confirmed by ICOMOS in 2011 as the ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes. TICCIH hopes these principles will be widely accepted by national governments. The text of this charter was passed by the assembled delegates at the triennial National Assembly of TICCIH held in Moscow on 17 July, 2003.[22]

## 9 Introduction

It was apparent that there was a degree of confusion surrounding the concept of the Industrial Heritage. Some of those interested in industrial heritage had arrived through trying to save a particular local factory, steam engine, mine or whatever. But they had no clear references or theoretical 'corpus' on which to base the defence of these physical remains, to which mainstream society, especially those with the power to determine the policies governing the cultural heritage, attributed little value.

The big problem for the industrial heritage was, and partly still is, the absence of an academic discipline to provide the theoretical foundation which would locate it within the cultural field. Without this support it was considered a lesser heritage. This was abnormal in that all the other specialized areas such as archaeology, art history or ethnology had

22 TICCIH (2003). The Nigny Tagil Charter. Retrieved from http://ticcih.org/about/charter/

their corresponding university departments. Nor were the architecture professionals very appreciative, a collective occupying key positions in the heritage administration, because industrial buildings for them presented no singularity, constructive, aesthetic or structural. In this situation the priority was to raise popular awareness, especially among those involved with cultural heritage.

## 10 Raising awareness

There was a need for a simple text which laid out the fundamental values and importance of industrial heritage as a part of our cultural resources.[23] The main purpose of this text was to become an instrument for the advocates of industrial heritage while at the same time influencing those with the power to decide issues of cultural policy. This text had to be prepared by TICCIH, already a well-respected international organisation. The fact that TICCIH had members from the countries with the most cultural influence in the world, with many well-known professionals and university academics, helped greatly to accomplish an evangelical task. Those people who had worked in TICCIH since the late 1970s had already done a great job. The name of TICCIH was already used by individuals and groups fighting to preserve a historic site of industry, to contradict those who claimed it had no cultural value, or worse, just a nostalgic obsession for forgotten ways of working.


**Fig. 8:** TICCIH's Nizhny Tagil Charter for the Industrial Heritage 2003.

## 11 International doctrinal texts

The relationship between TICCIH and ICOMOS has highlighted the importance of charters and international standard texts and informed the type of document TICCIH needed for industrial archaeology. The big over-arching agreements are of course the 1964 Venice Charter for the Conservation and Restoration of Monuments and Sites and the 1994 Nara Convention on Authenticity. Some agreements defined and promoted a specific aspect of cultural heritage such as the Florence Charter of Historic Gardens (1982), the Washington

23 Casanelles, E. (2012). TICCIH's charter for industrial heritage. In J. Douet, Industrial Heritage Retooled: The TICCIH guide to Industrial Heritage Conservation (section 32), Lancaster: Carnegie, 2012.

Charter on the Conservation of Historic Towns and Urban Areas (1987), and UNESCO's Convention on the Protection of the Underwater Cultural Heritage (2001). Others are more generic such as the Charter for the Protection and Management of the Archaeological Heritage (1990) and the Charter for the Built Vernacular Heritage (1999).

There were charters about specific themes. However, the industrial heritage needed a specific charter clarifying the core values of the field and laying out the best means of conserving the evidence. James Douet, editor of the TICCIH Bulletin and based in Barcelona, made the comparisons with ICOMOS charters and drafted the new industrial heritage charter.

## 12 Drafting the Nizhny Tagil Charter on the Industrial Heritage (2003)[24]

There is no complete consensus on the definition of the time frame for the industrial heritage. The majority, especially outside Europe, believe that the term industrial heritage encompasses all the physical remains from the world of production throughout the history of humanity. Many members of TICCIH believe that industrialisation had roots in prehistory and that the social and spatial archaeology & architecture of industrial settlements is an indivisible part of the study.[25] By the time the TICCIH Charter was drafted it was already the twenty-first century and technological change was so fast that production systems became obsolete very quickly.

To the definition of industrial heritage was added the further detail that it was composed specifically of remains with values from a variety of fields so as to highlight the interdisciplinary character, widening the scope of industrial heritage from productive sites to include '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, education or religious worship'.[26]

The Nizghy Tagil Charter tried to underline that the dominant value of the industrial heritage is as testimony to social and economic changes generated by the introduction of new production processes that changed and continue to change humanity's forms of living and working. This incorporates the values of ethnological heritage, even if the industrial heritage gives much more importance to technology and production methods as the protagonists of the great transformation of society worldwide, while traditional ethnology treats these as the material goods of a particular society.

TICCIH's charter also wanted to underline the documentary value of industrial heritage, whose study provides data on the ways of life and working customs of ordinary men and women. This was to emphasise these values alongside the more obvious intrinsic ones such as its rarity, age or aesthetic quality.

The separation of these two types of values, the testimonial and the intrinsic, was because failing to appreciate the evidential value of industrial heritage is one of the main reasons it is poorly understood in the wider cultural and political world. Cultural heritage managers habitually evaluate the built heritage on the basis of intrinsic structural but above all aesthetic qualities. Industrial heritage frequently lacks these characteristics. Its buildings are often not aesthetically fine, its structures can be commonplace or poor. Many are not especially old nor have they witnessed the great moments or personalities of national history.

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24 TICCIH (2003). The Nigny Tagil Charter. Retrieved from http://ticcih.org/about/charter/

25 Hughes, S. R, (2004). Social Archaeology: A Possible Methodology of the Study of Workers' Settlements based on the 18th- and 19th-Century Copper Industry of Swansea. In D. Barker & D. Cranstone (Ed.), The Archaeology of Industrialization (Leeds, Maney, 2004), 137-54.

26 Hughes, S. R. (2011). Attitudes to Religion, Education, and Status in Worker Settlements: The Architectural and Archaeological Evidence from Wales. In M.C. Beaudry & J. Symon Interpreting the Early Modern World: Transatlantic Perspectives (New York, Springer, 2011), 197-228.

The sections of the Nizhny Tagil Charter directed to the administration of the industrial heritage stressed the importance of inventories, and that they should include all the available historical sources, from the textual or graphic to the personal memories of people who worked or lived there. While oral history may be subjective and not very reliable for historians, it is invaluable for understanding the world of work and everyday life.

On the other hand, the Nizhny Tagil Charter recognises that not all the remains of industry have to be protected and conserved, only those whose significance has been demonstrated according to generally accepted criteria. Authenticity and integrity on industrial sites can be severely harmed by the mere act of removing plant and machinery. Moreover, authenticity in industrial sites, is not always easy to determine for places which have been adapted to new technologies and different uses during their working lives. The original form or the final condition are both valid criteria?

The principle of authenticity is more conceptual, that of integrity presents major practical problems for conservators and restorers. In many cases the extent of an industrial site brings it into conflict with the constructional interests of owners and planners. A consensus is often reached to preserve only part of a site as evidence of the former productive activity. The problem is accentuated when the evidence for an industrial landscape or neighbourhood is involved, and in these cases the decision is often taken to preserve fragments or isolated elements from different industrial buildings.[27]

The final theme to emphasise and which recurs throughout the charter is international collaboration. This has a special relevance for industrial heritage due to the transfers of technology, capital, knowledge and population which have accompanied industrialisation. TICCIH is the major organisation focussed on collaboration in the field of industrial heritage and its potential should be developed rather than in any way duplicated.

The Nizhny Tagil Charter was finalised in 2003. It was named after the great iron and steel-producing city in the Urals where the meeting was held, Nizhny Tagil.

In 2011 a shorter text inspired by the Charter was adopted by the 17th ICOMOS General Assembly in Paris as the Joint ICOMOS – TICCIH Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes, sometimes referred to as 'The Dublin Principles'. The Charter does have some strengths such as the recognition of Social Archaeology which are not especially emphasised in the Dublin Principles.

## 13 TICCIH - ICOMOS Joint Dublin Principles for the Industrial Heritage – 2011 – a summary[28]

### 13.1 Documenting & Understanding of the Industrial Heritage

Researching and documenting industrial structures. Relates to sites, landscapes and the related machinery, equipment, records or intangible aspects is essential to their identification, conservation, and the appreciation of their heritage significance and value. Human skills andknowledge involved in old industrial rocesses are a critically important resource in conservation and must be considered in the heritage evaluation process.

### 13.2 Protection & Conservation

Legal & Administrative Policies. Appropriate policies, legal and administrative measures need to be adopted and adequately implemented to protect and ensure the conservation

27 Ibid. Much of this section on the Nigzhny Tagil Charter is drawn from Casanelles, E. (2012). TICCIH's charter for industrial heritage. In J. Douet, Industrial Heritage Retooled: The TICCIH guide to Industrial Heritage Conservation (section 32), Lancaster: Carnegie, 2012.

28 The TICCIH-ICOMOS Dublin Principles can be retrieved at http://ticcih.org/about/about-ticcih/dublin-principles/

of industrial heritage sites and structures, including their machinery and records. These measures have to address the close relationbetween the industrial heritage, industrial

**Fig. 9:** The TICCIH-ICOMOS Dublin Principles for the Conservation of the Industrial Heritage 2011.


**Fig. 10:** TICCIH has an Advocacy Programme for International Industrial Sites in danger.

production and the economy, in particular with respect to rules for corporations and investments, trades or intellectual property such as patents, and standards applicable to active industrial operations.

13.3 Conserve & Maintain the Industrial Heritage

Appropriate original or alternative and adaptive use is the most frequent way and often the most sustainable way of ensuring the conservation of industrial heritage sites or structures. New uses should respect significant material, components and patterns of circulation and activity. Specialist skills are necessary toensure that the heritage significance is taken into account and respected in managing the sustainable use of these industrial heritage sites and structures.

13.4 Presentation & Communication of Industrial Heritage Values

The industrial heritage is a source of learning which needs to be communicated in its multipledimensions. It illustrates important aspects of local, national and international history and interactions over times and cultures. It demonstrates the inventive talents related to scientific and technological developments, as well as social and artistic movements. Public and corporate awareness and understanding for the industrialheritage are important means for its successful conservation

## 14 Advocacy for significant sites

TICCIH is increasingly asked to support preservation attempts in countries throughout the world and this role of advocacy is formalised so that TICCIH can continue to provide informed and international advice to people who feel that their industrial heritage is under threat. Recent casework has included Rheinfelden/Odda, Pawtucket (now down to a lawsuit between federal agencies), Cornish heritage and mining in World Heritage Areas, Falun

Opencast mine and Stockholm Gasholder 4.[29]

## 15 TICCIH - ICOMOS Communications Development as proposed in the draft action plan for 2016-17

15.1 TICCIH Communications with ICOMOS Scientific Council & ICOMOS International Scientific Committees

TICCIH to provide a representative at meetings of the ICOMOS Scientific Council. ICOMOS Board 01.11.2016. The ICOMOS Scientific Council has been reformed: Only 3 elected officers & the ISCs can make decisions. A member of TICCIH could attend as an observer.

TICCIH to undertake a survey of its members to see who sits on ICOMOS International & National Scientific Committees and to fill gaps in representation in appropriate international committees.

15.2 Information dissemination at appropriate events

TICCIH & ICOMOS dissemination of information at appropriate events. The TICCIH Board will work to enable a senior member of ICOMOS to provide a keynote presentation at the next TICCIH General Assembly. TICCIH will continue to provide speakers when asked to give presentations at ICOMOS national conferences & specialist international expert meetings.

Agreed by the ICOMOS Board 01.11.2016 with small changes.

15.3 Reciprocal representation in governing bodies namely TICCIH Board & ICOMOS General Assembly

TICCIH will continue to send representatives to the ICOMOS General Assembly who will carry-on presenting papers of relevance to both organizations. ICOMOS will be asked to formalize representation on the TICCIH Board. TICCIH is prepared to name a member of its Board, also active in ICOMOS, who will be responsible for formal liaison.

The ICOMOS Board 01.11.2016 felt it best for a liaison person to be formally appointed on each side.

## 16 Co-operation in research & development of improved approaches to the World Heritage Convention

16.1 Continue Thematic Studies consistent with 'Filling the Gaps in the World Heritage List'

Given above is a strategic overview on how 'Filling the Gaps on the Industrial Heritage World Heritage List' can be taken forward in a staged annual program using the appropriate expertise available through TICCIH and appropriate partnerships.

Agreed by ICOMOS Board 01.11.2016.

16.2 Identify Experts for Desk Reviews & Missions with potentially significant industrial heritage

TICCIH will continue to provide lists & contact details of experts appropriate to the World Heritage Nominations submitted when given an adequate time to consult the expert members available.

29 Martin, P. E. M. (2016). Global Perspectives China 2016. Paper given in Shanghai.

Agreed by ICOMOS Board 01.11.2016.

16.3 Parties will co-operate on the development of theory & conservation principles in industrial heritage as defined in the Dublin Principles

Both parties are participating in the development of a twentieth-century heritage framework co-ordinated by the Getty Institute to which the Dublin Policies will be applied. New theoretical ideas publicized in the TICCIH Bulletin will be developed by further co-operative action by TICCIH & ICOMOS national sections.
Agreed by ICOMOS Board with small changes, 01.11.2016.

## 17 Conclusion

TICCIH has been firmly established in Europe and North America for many years, but increasingly countries in South America as well as Mexico and Australia, have become active members of TICCIH. The Board of TICCIH now represents every Continent, Africa, Australia, Asia, Europe and America.

TICCIH is proud of the fact that it attracts large numbers of young people to its general conferences, almost equally divided between male and female, which also reflects its general membership and Board. For an academic organisation, this is quite outstanding and every effort needs to be made to increase the number of young female members of the Board to reflect the general makeup of society.

The collapse of the Soviet Union in the 1990s led to a spectacular growth in industrial preservation and interest in Hungary, Poland, Romania, Russia and the Czech Republic. Many of these countries are now coming to terms with their post-colonial experience, and are faced with the problems of what to preserve. Similarly, there has been a huge increase in interest in the work of industrial preservation in Asia, in particular in India, China including Taiwan, Japan, the Philippines and Korea.

What have been the main achievements of TICCIH and what are its new challenges?[30] Probably its greatest achievement is that it has survived all this time as a voluntary organisation with no funding from government or international organisations such as UNESCO. Interest in industrial preservation and interpretation has spread to almost every country in the world, with university courses, postgraduate training programmes, and even acceptance by conventional archaeologists.[31]

TICCIH engaged with the UNESCO/ICOMOS initiative to produce criteria to enable the inscription of the under-represented areas of the twentieth-century heritage. Further studies on the textile industry, as well as largely twentieth-century technological studies such as automobile production, hydro-electrical power-stations, power-stations generally, water-supply and other utilities, telecommunications, steel and concrete multi-storey constructions and motorways, should be prioritised. TICCIH, in consultation with the ICOMOS World Heritage Office, needs to refine the facilitating structures already established into a coherent programme that can be advanced harnessing the considerable resources established by its international networks.

It may seem logical, as at present being discussed within ICOMOS, to create a new ISC on the Industrial Heritage for effective working on this important topic. However. It would seem counter-productive if it does not continue to support the available flow of support and knowledge available from TICCIH for the World Heritage process.

30 Hughes, S. R. (2013). Industrial Archaeology: past & future, Patrimoine de l'industrie/ Industrial Patrimony, No. 30.l, 2013, 1-25.
31 Martin, P. E. M. (2016). Global Perspectives China 2016. Paper given in Shanghai.

Factory Litostroj Ljubljana. Photo: Sonja Ifko.

Goran Arčabić

# Museum Project Zagreb Industrial Heritage: History, State of Affairs, Outlook: an Impetus for Raising the Awareness of Industrial Legacy

**Summary**

*The period from the end of the 19th century onwards characterizes the intensive development of processing industry and plants connected to building the utility network in Zagreb (Croatia). The majority of all industrial complexes regarded as heritage sites are nowadays located in the wider city center area and are commonly considered valuable cultural and development potential.*

*Case studies presented in the paper provide a brief insight into the construction history of industrial facilities, application of the legal protection system in practice and management challenges in general. Due to reckless and hasty reuse of former industrial zones, some heritage structures have been endangered by the interests of high-profit making real estates investments. Despite legal protection, the lack of efficient control in the protective measures implementation has led to neglect and decay of listed buildings or even deliberate exposing to damage. The City authorities are decisive, liable and the most influential component in the process of heritage preservation as well as the creation of future directions for changing the perspectives of the industrial legacy.*

*In 2009 Zagreb City Museum launched the project Zagreb Industrial Heritage: History, State of Affairs, Outlook, aiming to research aftermath of the industrialization, process that crucially impacted urban development and social changes in the Modern and Contemporary era. The root intentions were raising the awareness, promotion and public presentation of the legacy of industry, as well as the stimulation of rethinking the heritage management models to be applied to valuable industrial buildings. Project goals, methodology, activities and achievements are respectively presented in the paper.*

## 1 Introduction: On industrialization as a driver of modernizing the periphery

By the end of the 19th century, Zagreb, the administrative center of Croatia and Slavonia, was a peripheral town of the Austro-Hungarian Empire, with no particular political and economic significance. Although it functioned merely as a transit hub by-line, connection to the southeastern arm of the Vienna – Trieste railway in the early 1860s and the concurrent emergence of industrial enterprises were key factors in the process of modernization. End 19th century saw the beginnings of intensified industrialization, which was reflected in the higher share of industrial production in the total economy of the city. Zagreb was gradually grown first into a local, then the regional economic center [1].

By the establishment of the Kingdom of Serbs, Croats and Slovenes (from the 1929 to 1941 Kingdom of Yugoslavia), after World War I a new political and economic territory was created. The structure of the economy and the achieved level of economic development of the northwestern regions were ahead of the rest of the country. These circumstances influenced the transformation of Zagreb in the center of finances, trade and industry of the newly established state. At the same time, a centralized public administration kept Zagreb

1 Karaman, I. (1991). Industrijalizacija građanske Hrvatske 1800-1941. Zagreb: Naprijed.

at the political periphery[2]. The global economic crisis in the early 1930s combined with a further strengthening of the state interventionism severely weakened financial strength of private entrepreneurs[3]. Nevertheless, local businesspeople managed to keep Zagreb on the position of the industrial center of regional importance. Between the two world wars, industrialization was the mover of economic power, driver of urban development, population growth and changes in demographic structure as well.

Transurban routes of the interstate railroads, as well as the concentration of industrial premises in their vicinity, have been the constant challenge to the urban development of Zagreb. Appreciation exclusively the interests of the foreign investors and the remote possibility of the influence of domestic factors in deciding on the position of the railway lines that during the 1860s passed through the city resulted in long-term harmful solutions. Branch line which led through Zagreb to the main railway Vienna – Trieste and railway Budapest – Zagreb – Rijeka interrupted the local traffic communications and had impeded the planned spread of the city to the south. Zagreb has since developed longitudinally, wherein areas south of the railway lines have taken on the features of the periphery. At the beginning of the 20th century, the need for the adoption of a new masterplan intensified the efforts for the solution of urban traffic problems caused by the railways. Accepting of minimally invasive, unassuming financial solution for improving the local traffic communications in 1911 did not eliminate key issues[4]. City traffic was enhanced by building the rail overpasses during the 1930s and by the construction of an elevated railway in the eastern part of the city after the World War II.

The position of the railways profoundly influenced the planning area for the industry. Relying on a zoning system, 1887 Masterplan laid the foundation of modern urban planning. An area on a south of the railroad tracks, as well as the western and eastern edges of the inner city, were predicted for the industrial enterprises. By the construction of the factory complexes along the southern border of the tracks, a limitation for expansion of the city to the south was furtherly strengthened. Intensive construction of an industrial zone on the southeast outskirts, along with the central drainage canal, began in the early 20th century. Between the two world wars, factory facilities and social housing were concentrated there, remaining in that area until the beginning of the 21st Century.

The rapid growth of the population of Zagreb from 1890 to World War I had largely been a consequence of the increased intensity of industrialization, which stimulated the immigration of workers from the city surroundings. In a decade 1900 to 1910, the number of industrial enterprises with more than 20 employees has doubled. Moreover, a quarter of all factories in Croatia and Slavonia was concentrated in Zagreb in the eve of the World War I. By 1918, planned settlements were built for skilled, mostly foreign workers, whereas spontaneously built substandard housing provided accommodation for a large number of the newly arrived unskilled workforce[5]. In the early 1920s, Municipality of Zagreb involved in solving the housing crisis by building dwelling units for the employees of the City, workers and the poverty. In combination with the development plans for certain areas and parts of the city, expansion of the urban infrastructure, improving the quality of public transport services and the construction of educational, health and social services has given positive results till the World War II.

After 1945, during the socialist planned economy period, the influence of industry was manifested by merging and expanding of the existing, and by a construction of the new complexes. Driven by ideology, large industrial premises appeared in eastern and western suburbs, combined by the newly erected dwellings, were providing existence for thousands of workers coming from the provinces.

2 Šimončić-Bobetko, Z. (2005). Industrija Hrvatske 1918. do 1941. godine. Zagreb: AGM.
3 Berend, I. T. Decades of Crisis: Central and Eastern Europe before World War II. Berkeley-Los Angeles-London: Univerisity of California Press.
4 Knežević, S. (1992) Regulatorna osnova Milana Lenucija za dio Zagreba od željezničke pruge do rijeke Save iz 1907. Radovi Instituta za povijest umjetnosti 16(16), 168-197.
5 Radović Mahečić, D. (2002). Social Housing in Zagreb between the Wars. Zagreb: Horetzky.

## 2 Zagreb industrial heritage: protection system, management challenges and prospects

### 2.1 The legal protection system and heritage management

According to the National Registry of Cultural Goods, three historical industrial complexes and five factory facilities in Zagreb have been protected as industrial heritage due to historical and architectural values. Including one factory building, inscribed to the Registry's tentative list, historical complexes and most of the individually protected facilities are located in the wider city center area [6]. The majority of all protected industrial structures, built from the 1890s to 1940s, are to be transformed into a public, business or residential facilities.

The paper focuses on three complexes selected by the criteria of the originally preserved structure, interiors, machinery and equipment, historical context, a value of the architectural design and deterioration risk as well. Analysis of the current condition of premises, as well as the critical query of the plans for their reuse, has detected certain "weak points" and shown general issues in evaluation, protection and use of the industrial heritage potential. In this matter, Zagreb is not an isolated case, but an example of a pattern to treat industrial heritage in Croatia.

### 2.2 Case Study 1: Steam-powered flour mill

Industrial complex of a steam-powered mill for the production of flour (Zagreb Steam-mill) had been originally built in the 1860s. After the fire that destroyed a majority of the plant, the facility was rebuilt from 1906 to 1908, to be further extended and added on to, following the requirements of the upgraded production. The ensemble formed a mill and transmission building, flour storage, silos, boiler room, engine room with a chimney, office buildings, warehouses, commercial and residential buildings [Figure 1]. The historical industrial complex has been protected as a site of significant urban, architectural, cultural and historical values and a prominent landmark as well. The necessity of restitution of the construction corps and façade, along with the possibility of noninvasive conversion, is legally prescribed for the integrated production assembly consisting of a mill and transmission building, storage and silos (an example of the early application of reinforced concrete structures to an industrial facility in Croatia)[6].

**Fig 1:** Steam-powered flour mill 2007, Zagreb City Museum.

6 Arčabić, G. (2008). Zagrebačka industrijska baština u Registru kulturnih dobara Republike Hrvatske: pregled, stanje, potencijali. Informatica museologica, 38(1-2), 22-29.

Part of the production assembly was damaged by fire in 1988, followed by ceased production [Figure 2]. South wall of the mill building was collapsed in 2013 due to destroyed iron structure and in 2014 occurred the removal of all structures of a vulnerable static. Plenty of ideas on the renewal of the historical complex for cultural (museum of contemporary art, archives, public library) and commercial reuse have emerged in last decades. However, none of them were implemented. Although protected as historical entity witnessing to the beginnings of industrialization in Zagreb and the application of new architectural and construction techniques and materials, a steam-powered mill has remained a neglected ruin.[7] The City of Zagreb is the property owner, and the location is legally treated as a strategic project, implying the future of the complex is in the hands of municipal authorities departments. Until the announcement of the binding architectural and urban competition for the complex renewal, remains of the historical mill will certainly be subject to questioning the various possibilities since it has been located on a connection line between the centre and the newly built settlements in the south.

**Fig. 2:** Steam-powered flour mill: part of the historical complex damaged by fire 1988, Zagreb City Museum.

## 2.3 Case Study 2: Workshops for repairing the locomotives and wagons

Since the construction, workshops for repairing the locomotives and wagons (Hungarian State's Railways Machine Shop) have been an important industrial plant, both strategically and economically.[7] The core of the complex, completed in 1894, consists of the locomotives and wagons repair shops, the blacksmith and the turning shop [Figure 3]. Up to 1918, a series of upgrades, expansions and constructions of new facilities followed up. Substandard structures, which have been more frequent since the 1930s and particularly since 1945, nowadays impede the heritage characteristics visibility of the historical industrial complexes. After World War II former Machine Shop facilities were integrated into the newly established Railway Vehicles Factory, which completed the process of relocation from the city center in 2011.

7 Paladino, Z. (2012). Zaštita zagrebačke industrijske baštine izradbom konzervatorskih elaborata Gradskoga zavoda za zaštitu spomenika kulture i prirode u Zagrebu. Godišnjak zaštite spomenika kulture Hrvatske, 33(33/34), 147-172.

**Fig. 3:** Workshops for repairing the locomotives and wagons 2007, Zagreb City Museum.
The original ensemble, along with valuable structures upgraded during the first half of the 20th century (e. g. the water tower), has been protected since 2004 as a site of significant urban, architectural, cultural and historical values and a prominent landmark, as well.[8] Besides preserved structural elements of a typical shed, the peculiar value was contributed to conserved authentic interiors and technical equipment (pneumatic hammers, presses, lathes and mobile platform for handling the wagons) [Figure 4]. Underway relocating the production of the Railway Vehicles Factory, preserved industrial landscape, buildings, machinery and equipment were considerably damaged and partly destroyed.

**Fig. 4:** Workshops for repairing the locomotives and wagons: turning shop 2009, Zagreb City Museum.

Due to location, the industrial area of a former Machine Shop is relevant for an urban development of the center of Zagreb. In 2006 the City of Zagreb purchased the whole brownfield which has since been treated as the strategical project. Relocating of industry, urbanization and transformation of former industrial into the zone of predominantly commercial purposes, including residential, public and social facilities, is anticipated in the Masterplan. Along with occasional attempts at maintaining events organized by initiatives of cultural industry projects, the ensemble is out of function. The local authorities have not yet launched binding architectural and urban competition for the brownfield conversion and the former industrial complex renewal and reuse.

8 Dumbović Bilušić, B. (2001). Strojarnica Državne Ugarske željeznice u Zagrebu – Elementi za stvaranje novog urbanog identiteta. In M. Goršić (Ed.), Grad za 21. stoljeće (pp. 243-252). Karlovac: Društvo arhitekata, građevinara i geodeta.

## 2.4 Case Study 3: The City's slaughterhouse and cattle market

The Slaughterhouse and cattle market in Zagreb was one of the largest municipal investments between the two world wars. It was designed and built between 1928 and 1931 after the project of the Berlin architect Walter Frese, who specialized in the construction of industrial complexes of similar purposes. The modern plant was processing domestic raw materials, using resources from the predominantly agrarian structured economy[6].

The ensemble is protected in 1999 as a prominent place in the architectural heritage of Zagreb. In 2004 the whole historical industrial complex was listed in the National Registry of Cultural Goods. The process plant, designed by the principles of modern functionalist architecture, is linked with more traditionally formulated entrance buildings along the access road [Figure 5]. The value of ensemble is also reflected in applied design and construction solutions (e. g., zenithal lighting) as well as the combined materials (reinforced concrete, iron structural elements, facade cloaked in bricks). Authenticity and identity of the process plant and equipment parts are preserved [Figure 6]. Slaughter halls, a section for intestines processing, space for sampling and analysis, cold storage, icehouse and water tower complex, market hall, boiler room and engine room, workers' laundry, dressing rooms, a dispensary, management building and laboratories, offices and restaurant share monumental features[7].

**Fig. 5:** City's Slaughterhouse and cattle market 2007, Zagreb City Museum.

Since the mid-1980s, the plants of the former City's slaughterhouse and cattle market operated within the company Zagrepčanka - meat industry. In 2000, Zagrepčanka declared bankruptcy and a year later the City of Zagreb purchased land and real estates of a former factory. Due to unresolved property, legal proceedings were initiated, halting opportunities for further investments. Although indicated as a suitable concert place, an exhibition space, as well as an adequate polygon for civil society activities and occasional presentations of creative industries, in the past decade a permanent purpose for a protected historical industrial complex has not been found[9].

9 G. Arčabić & M. Meštrović (Eds.). (2015). Rethinking industrial sites: stručno-znanstvena analiza prostornih mogućnosti kompleksa nekadašnje gradske klaonice i stočne tržnice u Zagrebu = professional and scientific analysis of the spatial possibilities for the former complex of the City's slaughterhouse and cattle market in Zagreb. Zagreb: Muzej grada Zagreba.

## 2.5 Management Challenges and Prospects for the industrial heritage

According to the Masterplan, transformation directions of protected historical industrial complexes in Zagreb are rather uniform. Vast brownfields in the wider city center are to become zones of predominantly commercial purposes, including residential areas as well[10]. Such apparently simple solution, led by the profit-making approach, hides numerous

**Fig. 6:** City's Slaughterhouse and cattle market: slaughter hall 2012, Zagreb City Museum.

hazards limited not exclusively to the sustainability of former industrial facilities, but to the public interests in general. Putting the public interest in the background, in a case of conversion the areas of primary importance for urban development, as well as prolonging the implementation of architectural and urban competitions, with clearly defined programs of protection and default opportunities for content reuse of heritage structures, are especially concerning. Although facing with legal procedures and public reactions due to non-transparent operations and business activities, combined with a recession, the City authorities have not activated an extraordinary development potential of the aforementioned brownfields since last fifteen years.

In conclusion, the lack of awareness of cultural and economic developing possibilities of the brownfields and perceiving the culture in a very traditional, limited manner, should be emphasized as major obstacles in managing industrial heritage in Zagreb. Furthermore, the exceeding influence of the local authorities in decision-making process upon the methods of management of valuable structures raises the questions of the competencies, ultimate intentions and responsibility regarding the achievements and failures. Inefficient control in implementing the protective measures, and sometimes even unresolved property issues, contribute the dereliction and deterioration of sites in combination with aggressive modifications of authentic structures. Ultimately, the existing managing model applied on protected industrial heritage complexes, if it is so to be called, leads to the compromising sustainability of heritage features of the protected buildings.

Following the aforesaid, Zagreb needs a radical attitude change towards the industrial heritage perception. The synergy of the competent services of protection, strategic planning and assets management, an educational and research institutions, museum professionals and civil society organizations is required in preserving the heritage and reactivation of its development power. A joint effort should be focused on pushing arguments based on the international experiences and insisting on the socially responsible acting of decision-makers.

10 Generalni urbanistički plan Grada Zagreba: namjena. Retrieved from http://www.zzpugz.hr/prostorno-uredenje/generalni-urbanisticki-plan-grada-zagreba/.

## 3 Museum project *Zagreb industrial heritage: History, state of affairs, outlook*

### 3.1 Origins and Project goals

Launching the Project, Zagreb City Museum's team was guided by the cognizance of industrialization as a key driver of global economic and social changes in past two and a half centuries, and by the awareness of the deep presence of the legacy of industry in the material and immaterial environment at the local level. Curiosity for a more comprehensive understanding the complexity of the industrialization phenomenon, as well as the awareness of the need for change the attitude towards heritage attached to industry, were triggers for the Project undertake. Besides, the effects to the environment, society and the individuals have determined fundamental research issues.
Cataclysmic effect on pre-industrial communities and the landscape caused a time long distance for the legacy of the industrial age to become recognized as historical, cultural, architectural and technological value, and a part of the global heritage[11, 12]. Although recent phenomenon, the perception of industrial landscapes, facilities and equipment as a cultural worth segment has been embedded in the Western European and Nort American practice of the monument protection for half a century, whereas the first industrial sites entered the World Heritage List nearly three decades ago. Transition process in Croatia has conditioned quite a late deindustrialization, but the rapid decline in industrial production from 1990 onwards. Implications for industrial sites are dramatic, not exclusively at the monument protection field, but also concerning delays in activating development potential of certain brownfields, as clarified in the preceding sections (2.2, 2.3, 2.4, 2.5).

The Zagreb City Museum's Project started in 2009, and its final stage is planned to end in 2016. The Project has gathered experts in various areas in their search for common goals:

- To research, evaluate and present the industrial legacy from historical, social, town planning, architectural and technological point of view
- To influence building of awareness on industrial heritage being a part of universal heritage and an important segment in development of the human civilization
- To set up a warning about wastage of valuable heritage structures
- To update and systematically question sustainability methods applied to industrial heritage
- To provide solutions for reuse of valuable industrial structures

The goals are to be reached through:
- Cycle of study exhibitions, to present a reflection of industrial development in the city of Zagreb and its inhabitants
- Professional meetings, to point to actual issues and discuss the outlook of industrial heritage
- Workshops organized in cooperation with institutions in the scientific field of architecture and urban planning, as well as organizations of civil society, to provide conceptual designs for the conversion of the former industrial complexes
- Lectures and presentations, to give insight into different experiences on reuse the heritage structures in urban areas
- Professional guidance, to enable direct contact of visitors with industrial heritage
- Publications

### 3.2 On Methodology

The Project relies on research and interpretation of archival documentation and museums' collections, with no pretensions to be qualified as a scientific one. Since it has been conceived and conducted by the museum institution, new findings and notions have been

11 Palmer, M. & Neaverson, P. (2012). Industrial archaeology: principles and practice. London-New York: Routledge.
12 Cossons, N. (2012). Why preserve the industrial heritage?. In J. Douet (Ed.), Industrial Heritage Re-tooled: The TICCIH Guide to Industrial Heritage Conservation (pp. 6-16). Lancaster: Carnegie Publishing - TICCIH.

publicly presented via study exhibitions – the primary communication medium.

Although encountering a historical geography and urban studies, the methodology of historiography and a historiographical discourse have been fundamentally used in research and interpretation. The archaeology which field of interest is broad-based in a study of the industrial sites and facilities also influenced the methodological approach[11, 13, 14]. It is reflected by applying the site identification techniques (a field survey), by the usage of conservation studies and plans made for the monuments protection purpose, as well as by the consultation of specific documentary sources (maps, plans, drawings, aerial photography). Despite opinions that the industrial development studies based solely on documentary sources are not entirely reliable, the site identification techniques combined with the research of historical sources are commonly practiced in a case of sites dating from 19th or early 20th century.

The Project framework consists of a cycle of three study exhibitions that have diachronically presented industrial development, as well as the influence of industry on the city and its inhabitants. Professional meetings, workshops, lectures, presentations and organized on-site tours have been taken place intermittently, in between and during study exhibitions.

Including the monument protection issues (which are associated with the technocentric "industrial archaeology"), under an influence of the new paradigms in the archeology, the Project team has tried to ask some questions and offer relevant answers[14, 15, 16]. The questions are related to the effects of the industrialization on the environment and the inhabitants, as well as the transformations of the urban industrial landscapes and brownfields.

It should be emphasized that the project Zagreb Industrial Heritage does not offer definitive answers. It is more an attempt to warn about the possible wastage of a development potential of the city and therefore the Project is opened to associates of different profiles that could contribute to the achievement of the goals.

### 3.3 Activities and achievements

Public response and interest of the media shown for completed programs of the Project speak in favor the success achieved in the areas of education, research and presentation as well as of bringing up-to-date the issue of protection and reuse of the Zagreb industrial heritage. In addition to advertising the exhibitions in electronic media, Project visibility has been encouraged by the intermittent public presentations, attending the international symposia and by the presence on social networks and media as well.

Covering a period from the mid-1860s to mid-1950s, study exhibitions have offered **a comprehensive insight into the importance of industrial heritage**, trying to define the historical context, the meaning and the consequences which the process of industrialization left upon the city of Zagreb and its inhabitants[17]. Also, the exhibitions have presented the

13 Cranstone, D. (2005). After industrial archaeology?. In E. C. Casella & J. Symonds (Eds.), Industrial Archaeology: Future Directions (pp. 77-91). Springer.
14 Symonds, J. & Casella, E. C. (2006). Historical archaeology and industrialization. In D. Hicks & M. C. Beaudry (Eds.), The Cambridge companion to historical archaeology (pp. 143-167). Cambridge: Cambridge University Press.
15 Casella, E. C. (2005). "Social Workers": New Directions in Industrial Archaeology. In E. C. Casella & J. Symonds (Eds.), Industrial Archaeology: Future Directions (pp. 3-31). Springer.
16 Beaudry, M. C. (2005). Concluding Comments: Revolutionizing Industrial Archaeology?. In E. C. Casella & J. Symonds (Eds.), Industrial Archaeology: Future Directions (pp. 301-314). Springer.
17 Exhibition Modernization on the Edge of Empire: Zagreb Industrial Heritage from 1862 to 1918. Retrieved from http://mgz.hr/en/exhibitions/modernization-on-the-edge-of-empire-zagreb-industrial-heritage-from-1862-to-1918,200.html

current state of affairs of the 18 industrial structures and complexes, the protection system and outlook determined by the Masterplan and detailed zoning plans of each of the city areas[18].

The symposiums, participated by both Croatian and international experts, have aimed **to exchange the experiences and to compare the heritage protection systems** as well as governing models concerning industrial heritage. Besides, the international cooperation covered presentations of possible project ideas and disposable financial support for reuse of heritage buildings via lectures and hosting exhibitions[19]. Association for the Protection of Cultural Monuments in the Federal Republic of Germany, French Embassy in Zagreb and the CILAC (Comité d'information et de liaison pour l'archéologie, l'étude et la mise en valeur du patrimoine industriel) supported Zagreb City Museum's programs.

**Interinstitutional cooperation and cooperation with non-governmental organizations** (NGO) has shown results in presenting the conceptual designs for reuse of the former industrial complexes and enabled faster perception of the Project among target groups. The initiating motive for the exhibitions conducted in partnership with Academy of Dramatic Art in Zagreb was to enrich the Zagreb City Museum collection with contemporary photographs of documentary and artistic value and to give opportunities for young artists to exhibit their works[20]. The goal of the workshop entitled Muljara, conducted by Zagreb City Museum and the ARCHIsquad architects (NGO), was to present possible content reuse of the cement factory complex in the Zagreb outskirts.

In the context of promoting the protection and reuse of industrial heritage, the intention of one-year program Rethinking industrial sites was to analyze the situation of the former Zagreb City's slaughterhouse and cattle market as well as to present the possibilities of its transformation. In partnership with educational institutions in the scientific field of architecture and urban planning research (Universities in Ljubljana, Novi Sad, Sarajevo and Zagreb), Zagreb City Museum implemented a program on behalf of the client City of Zagreb (Office for the Strategic Planning and Development of the City). Ideas arising from the program Rethinking Industrial Sites will serve as references and guidelines for future activities which are to be carried out by the City of Zagreb for the historical complex[21].

Since 2010 Museum has organized a dozen of guided tours to industrial heritage sites and objects, trying to provide a **touch to heritage** for interested participants. In addition to the Museums Night 2010, program visitors could enjoy in the showing of history documentaries on the Zagreb industrial companies and advertising clips recorded in the latter half of the 20th century. A part of the program took place inside the factory premises of the Zagreb Brewery, where the visitors had exclusive access to the structures built at the end of the 19th century.

## 4 Conclusion

Zagreb City Museum launched the project entitled Zagreb Industrial Heritage: History, State of Affairs, Outlook reacting on deterioration and uncertain future to industrial heritage sites. In more than fifteen programs conducted since 2010, the root intentions to raising the awareness, promotion and public presentation of the legacy of industry have been realized.

18 Exhibition The Industrial Center of the State: Zagreb industrial heritage from 1918 to 1945. Retrieved from http://mgz.hr/en/exhibitions/the-industrial-centre-of-the-state-zagreb-industrial-heritage-1862-1918,463.html
19 Exhibition New Uses for the Old Industrial Buildings. Retrieved from http://mgz.hr/en/exhibitions/new-uses-in-old-industrial-buildings-forty-years-of-post-industrial-monuments-in-germany,238.html
20 The Photography of Industry - Exhibition of Student Works from the Photography Chair, Academy of Dramatic Art in Zagreb. Retrieved from http://mgz.hr/en/exhibitions/the-photography-of-industry---exhibition-of-student-works-from-the-photography-chair-academy-of-dramatic-art-in-zagreb,461.html
21 Exhibition Rethinking Industrial Sites. Retrieved from http://mgz.hr/en/exhibitions/rethinking-industrial-sites-professional-and-scientific-analysis-of-the-spatial-possibilities-for-the-former-complex-of-the-city%E2%80%99s-slaughterhouse-and-cattle-market-in-zagreb,517.html

Supported by the international and national institutions, governmental and municipal authorities, as well as non-governmental organizations and individual cooperators, a serial of exhibitions, symposiums, lectures, workshops and guided tours were run to achieve comprehensive insight into the importance of industrial heritage.

The evaluation of the programs completed from 2009 to 2015 reveals positive feedback from the participants and visitors, media support, as well as the growing interest of students toward industrial heritage issues. The impact to rethinking the heritage management models has only been reflected at the implementation level of survey competitions, involving mainly students of Architecture and Economic Geography. Although supported by the City of Zagreb administration, the Project has not reached the decision-makers. Impetus effect for launching and implementation of development projects on brownfields has not been recorded.

Mercury mine Idrija. Photo: Sonja Ifko.

Tatjana Dizdarevič, Martina Peljhan

# Preservation, Restoration and Revitalization of the Idrija Mercury Mine Smelting Plant Area – Part of the 'Heritage of Mercury. Almadén and Idrija' UNESCO Site

**Summary**

*Idrija has managed to preserve the diverse and unique industrial and technical heritage of its 500-year-old mining history that tells the story of mercury, which was inscribed on UNESCO's World Heritage List in 2012. Many mining facilities, machines, equipment and documents were preserved during the Idrija Mercury Mine's closing down and liquidation process. One of the crucial parts of the mine that has not yet been renovated is the smelting plant, which is in danger of losing its protected properties due to its deteriorating state. The area of the monument covers the cableway end-station, the building of the ore separation and crushing plant, conveyor belts, collection silo, rotary furnace, smoke chamber, smoke pipelines and chimney, and the Špirek-Čermak furnace. The smelting plant represents the final phase of the mine's development. Its renovation and renewal is a significant challenge in terms of financing and expertise. In February 2014, the Idrija Mercury Heritage Management Centre (IMHMC), a public institution, took over the management of the smelting plant area from the Idrija Mercury Mine, Ltd. – in liquidation. The IMHMC was founded pursuant to a decision of the Slovenian Government aimed at the comprehensive and sustainable management and preservation of cultural heritage and natural values linked to the Idrija ore deposit. The IMHMC successfully applied to a call for proposals to co-finance the project 'IDRIJA – SMELTING PLANT AREA OF THE IDRIJA MERCURY MINE – 1st PHASE OF RECONSTRUCTION' under the EEA Financial Mechanism Programme 2009-2014 – B.3. Cultural Heritage, in the amount of EUR 2 million. Its project partners are the Idrija Municipal Museum and the Magma Geopark from Norway. The goal of the project is to preserve the endangered cultural monument and enrich it with new content, enhance its modernity and attractiveness, revive its heritage with educational content, raise awareness of the importance of preserving cultural heritage, and enhance tourism opportunities in the area. The project was begun on 30 December 2014 and will be completed on 31 December 2016.*

## 1 Introduction

The smelting plant of the Idrija Mercury Mine ceased to operate in 1995. After twenty years of endeavours aimed at restoring this cultural monument of national importance, the Idrija Mercury Heritage Management Centre (IMHMC) began to implement the 1st phase of restoration and revitalization of the smelting plant area of the Idrija Mercury Mine, which is being co-financed under the EEA Financial Mechanism Programme 2009-2014.

## 2 Smelting plant area

During its 500 years of operation, the Idrija Mercury Mine was reputed for its technical superiority. Throughout history, the Mine's technical achievements in the areas of mercury extraction and transport were much better known than its processing of mercury ore. Over the years, the burning of ore underwent many changes and/or improvements, but it was not until the introduction of Čermak-Špirek furnaces (1886), later followed by a new separation plant (1957) and rotary furnace (1961), that the Mine attained one of its peaks

in the field of metallurgy as well[1]. The Čermak-Špirek furnace was entirely the result of domestic know-how and an original technological solution in the area of smelting at the end of the 19th century, which won Idrija the leading position among mercury producers. The present-day smelting plant area represents the last stage of technological development, as its facilities and devices operated continuously until the shutdown of the mine and represent an inseparable part of its history. The abandonment of mining activities and the development of a new industry has in many ways changed the town's appearance. The mine facilities, especially those in the smelting plant areas, have been replaced by the production facilities of a new industrial zone of the Kolektor Group company and others, which have given this part of the town a new content and appearance[2].

In 2011, the smelting plant area was proclaimed a cultural monument of national importance by the Decree on the designation of technical heritage in Idrija and its surroundings (Official Gazette of the Republic of Slovenia, no. 66/2001), under Heritage Register Number (HRN) 7460. The area comprises the cableway end-station, the building of the ore separation and crushing plant, conveyor belts, collection silo, rotary furnace, smoke chamber with smoke pipelines and chimney, and the Špirek-Čermak furnace II. The Čermak-Špirek furnace II has been entered in the Register of Cultural Heritage as an independent heritage unit (HRN 4825)[3]. All the facilities with preserved original machines and devices have exceptional historical value that needs to be treated in the context of the continuous, 500-year operation of the second largest mercury mine in the world and its unique universal heritage that complements the story of mercury extraction, i.e. the procedure of extracting mercury from ore, which so far has not been presented in Idrija or in Almadén[4].

Owing to its long-lasting abandonment, the vandalism and damage caused to it in the past, as well as its potential collapse, the monument faces the threat of losing its protected properties.

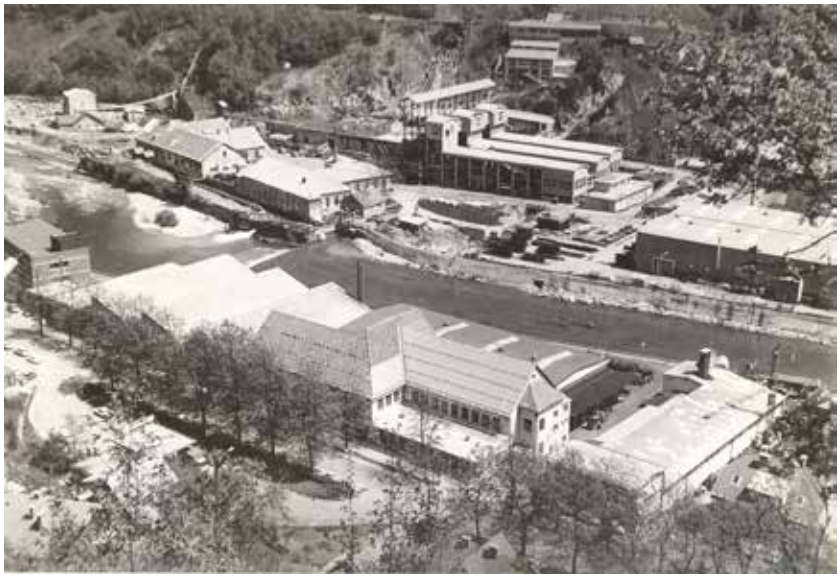


**Fig. 1:** Idrija Mercury Mine smelting plant area in 1991 (Idrija Municipal Museum archives).

1 Klemenčič, T., Eržen, U., Pišljar M. (1997). Predlog za ohranitev območja topilnice Rudnika živega srebra Idrija kot tehnični spomenik (pp. 1). Idrija Mercury Mine Archive.
2 Cigale, M. (2004). Žgalnica Rudnika živega srebra Idrija - nekoč, danes jutri. Posvet Žgalnica Rudnika živega srebra Idrija – jutri, Idrija. Idrija Mercury Mine Archive.
3 Odlok o razglasitvi kulturnih in zgodovinskih spomenikov ter naravnih znamenitosti na območju občine Idrija. Official Gazzete of Republic of Slovenia, no. 16/1986.
4 Leskovec, I. (2015). Predlogi za območje občin Idrija in Cerkno za osnutek Zakona o kulturnem tolarju 2015–2020 (pp. 5-7.). Idrija Mercury Mine Archive.

## 3 Endeavours for preservation of the smelting plant area and its facilities

The long-term programme for the gradual, complete and permanent shutdown of the Idrija Mercury Mine, prepared in 1987, also foresaw, among the activities that would follow the termination of ore extraction and smelting, the disassembly of devices and the demolition of facilities in the smelting plant area. However, upon the termination of mercury ore extraction and smelting activities, the then management of the Idrija Mercury Mine recognized the significance of the Idrija mine's technical heritage and decided to restore, in the smelting plant area, one rotary furnace (RP3) with pertaining facilities and the ore separation building in order to preserve the image of the Idrija mine's technical heritage already being presented by Anthony's Main Road tourist mine as part of a demonstration of the history of mercury ore extraction, and complement it with a display of mercury transport and extraction in the smelting plant.

In 1996, alongside the demolition works (two rotary furnaces, chemical laboratory building and mercury filling plant), ecological rehabilitation of the smelting plant area, as well as the rehabilitation and recultivation of the smelting plant chimney area, the Idrija Mercury Mine initiated activities aimed at the preservation and arrangement of this area. For this purpose, the Proposal for the preservation of the rotary furnace and arrangement of the smelting plant area[5] was prepared, and included the preserved rotary furnace and the ore separation plant with pertaining functional land. A year later, it was followed by the Proposal for the preservation of the smelting plant area of the Idrija Mercury Mine as a technical monument[1]. The preservation and adequate arrangement of the cableway end-station, ore separation plant, bridge with conveyor belt, collection silo and feeder system structure, rotary furnaces and the condenser system would enable a demonstration of the comprehensive procedure of transport, separation, crushing and smelting of mercury ore. Part of the spaces in the ore separation plant would be used to present the use of and environmental issues related to mercury, as well as the development of new activities after the mine's shutdown. A space on the platform alongside the rotary furnace was foreseen for the display of the preserved Čermak-Špirek furnace, which at that time was still set up inside the industrial zone of the Kolektor factory and was not freely accessible, at the same time also posing an obstacle to the company's technological process. Precisely owing to the urgent expansion of production at the Kolektor factory, the Čermak-Špirek furnace was disassembled and its components removed from the factory's yard in 2002 under the expert guidance and supervision of the Idrija Municipal Museum and the Idrija Mercury Mine. Its components are stored on the platform beneath the rotary furnace. As the works were adequately documented (drawings, inventories, photos), the reassembly of this furnace in future is not questionable.

In the years that followed, discussions were conducted in connection with the smelting plant area, focusing on the spatial conditions at the location of the former mine smelting plant and the Halda 2 building plan in Idrija (ZN RŽS2-HALDA in Idrija) regarding the arrangement of an access route between the newly constructed facilities of the Kolektor factory and the preserved rotary furnace. Based on the project documents for the construction of the Kolektor factory's new production facility S-18/II[6], the rotary furnace condensers, the smoke chamber of the rotary furnaces, the smelting plant's transformer station, warehouses I and II in the extension of the smoke chambers, the loading ramp, and the ventilation and gas station in the smelting plant area were demolished, and the platform alongside the rotary furnaces was arranged. In line with the project[7] and the building permit, part of the construction wastes accumulated after demolition of the former smelting plant facilities were deposited in the existing ducts of the smelting plant's smoke pipeline running along the slope from the smoke chamber to the supporting wall

5 Klemenčič, T. & Pišljar, M. (1996). Predlog za ohranitev rotacijske peči ter ureditev območja topilnice. Idrija Mercury Mine Archive.

6 Božič inženiring Ltd. Idrija (1997). Projekt za pridobitev gradbenega dovoljenja, no. 05/97. Idrija Mercury Mine Archive.

7 Inštitut za rudarstvo, geotehnologijo in okolje Ljubljana (1997). Rudarski projekt Izvedba odlaganja gradbenih odpadkov v bližini opuščene rotacijske peči Rudnika živega srebra Idrija, no. 12/7-97. Idrija Mercury Archive.

of the local road above the ore separation facility and, in the final phase, the recultivation of the area was carried out. For the purpose of preventing the deterioration of the rotary furnace, the static rehabilitation, sandblasting and anticorrosion protection of the support structure of the condensers were performed, as their static condition was most endangered due to the demolition of the other two furnaces. The roof structure and roofing were also replaced. Project documents were prepared for the arrangement of the mine area alongside the smelting plant and chimney[8], and the first phase of disassembly of equipment in the ore separation plant, which had not been foreseen in the planned presentation of ore processing, was completed. Works were also completed on the rehabilitation of the upper part of the smoke pipeline above the road below Golica to the chimney, which had been finished in 2000 with the restoration of the chimney. After 2006, the roof structure and roofing above the rotary furnace were restored, the bunkers in the ore separation plant were rehabilitated, and the rotary furnace and ore separation areas were cleaned. On the basis of the documents entitled Concept of restoration and revitalization of the smelting plant area of the Idrija Mercury Mine[9] and the Plan for the presentation and restoration of objects of movable heritage of the 'Separation facility – Crushing and ore separation plant'[10], which foresaw the restoration of ore crushing and separation machines, the right ore separation line was entirely disassembled and the left line was renewed with useable components. The works included rough cleaning of machine components, the rehabilitation, restoration and manufacture of missing or obsolete components, reassembly of existing, still useable components from the right line 'rich ore', and the removal of other redundant materials from the facility. This intervention enabled, in line with the construction works project[11], more space to be acquired for new contents (mercury research centre, laboratory, exhibition area, conference room, study rooms, UNESCO information centre). In the period from 2011 to 2015, no other works were carried out in the smelting plant area, except for the disassembly of three of the four ore discharge channels and the conveyor belt in the shaft below the bunkers under the ore separation plant, whose preservation and presentation had not been foreseen.

With the aim of combining the reflections and plans in connection with the technical heritage of the Idrija Mercury Mine, the Idrija Mercury Mine, the Idrija Municipal Museum and the Idrija Museum Society organized conferences in the years 2000, 2003 and 2004 for the purpose of evaluating the state of Idrija's technical mining monuments and enhancing the preparation of joint plans for their integral inclusion in spatial plans, their restoration, presentation and marketing. Special attention was devoted at the conferences to the issue of the mine's smelting plant, whose thorough restoration could no longer be delayed indefinitely, because its facilities were inevitably deteriorating. One of the key findings at the conferences was that without financial support from the state, sponsoring by domestic companies, or funds from national and international public tenders, it would not be possible to carry out the foreseen works. Emphasis was also laid on the need to reach a mutual agreement or reconciliation between the spatial plans of the Municipality of Idrija, the interests of the Kolektor Group company, and the interests of the group for the preservation of smelting plant facilities (Idrija Mercury Mine, Idrija Municipal Museum, Idrija Museum Society) and, following the preparation of project documents for the restoration of the smelting plant, to devote efforts for ensuring financial resources for its implementation with the participation of the state, domestic companies, and project sources.

In the following years the Idrija Mercury Mine, in cooperation with experts in the fields of conservation, protection and presentation of cultural heritage, actively undertook the supplementation of the prepared documents for the restoration and revitalization of the

8 Božič inženiring Ltd. Idrija (1999). Projekt ureditev območja RŽS ob topilnici in dimniku, št. 053/97-1. Idrija Mercury Mine Archive.
9 Eržen, U. (2007). Idejna zasnova obnovitve in oživitve območja topilnice RŽS Idrija. Idrija Mercury Mine.
10 Eržen, U. (2009). Načrt prezentacije in obnove predmetov premične dediščine 'Separacija – Drobilnica in klasirnica'. Idrija Mercury Mine.
11 GEA CONSULT Ltd., Škofja Loka (2009). Projekt gradbene dokumentacije 'Idrija – območje topilnice Rudnika živega srebra'. Idrija Mercury Mine Archive.

smelting plant area[12, 13, 14]. The documentation covered the restoration of facilities and devices as well as the presentation of the history of smelting, the properties and use of mercury, trade routes, ecology and health care, shutdown works, monitoring, and the site selection of the then mercury information and research centre, and the information and interpretation centre.

The costs of preparation of the documentation and the execution of rehabilitation and other previously mentioned works in the smelting plant area, which were conducted in line with conservation requirements[15] and in the period from 1995 to 2015 totalled EUR 523,100, were covered by the Idrija Mercury Mine from its own funds in the amount of EUR 160,700, the Ministry of Culture in the amount of EUR 345,700, and by the Kolektor factory in the amount of EUR 16,700 (disassembly and relocation of Čermak-Špirek furnace).

**Fig. 2:** Idrija Mercury Mine smelting plant area in 2007 (photo by Jani Peternelj, 'Heritage of Mercury. Almadén and Idrija' nomination dossier presented to UNESCO in January 2011).

## 4 Liquidation of the Idrija mercury mine and establishment of the Idrija mercury heritage management centre

At the end of 2009 the Government of the Republic of Slovenia passed, on the proposal of the Ministry of Economic Affairs, a resolution on the implementation of a procedure for the regular liquidation of the Idrija Mercury Mine (Resolution of 24 December 2009), as a result of which the Idrija Mercury Mine was prevented from obtaining state funding for the implementation of further investments also in the areas of preservation, conservation and presentation of technical heritage in the smelting plant.

For the purpose of ensuring the comprehensive and sustainable management and preservation of cultural heritage and natural values linked to the Idrija ore deposit in Idrija, the Government of the Republic of Slovenia passed in 2011 a resolution establishing a public institution named the Idrija Mercury Heritage Management Centre – IMHMC (Official Gazette of the Republic of Slovenia, nos. 55/2011 and 6/2014). The principal activities of

12 ZVKDS Restavratorski center, Ljubljana (2008). Konservatorski načrt in katalog: Idrija – Območje topilnice Rudnika živega srebra Idrija, EŠD 7460 in Idrija – Špirek Čermakova peč II., EŠD 4825.
13 Eržen, U. & Zelenc, A. (2009). Konservatorsko restavratorski projekt Idrija – Čermak Špirekova peč II. Idrija Mercury Mine, Idrija Municipal Museum.
14 Eržen, U. (2010). Načrt prezentacije in obnove predmetov nepremične in premične dediščine: Območje topilnice – separacija, most s transportnim trakom, rotacijska peč. Idrija Mercury Mine.
15 ZVKDS OE Nova Gorica (2009). Ovrednotenje klasirnice rude in konservatorski pogoji, no. 1617-07/TB. Idrija Mercury Mine Archive.

the Centre, alongside the management of cultural heritage, including the important task of managing the site entered in UNESCO's World Heritage List, would also comprise, after the liquidation of the Idrija Mercury Mine, the maintenance of the unfilled part of the pit under the town of Idrija and the monitoring of the impacted area of the Idrija Mine, as well as tasks related to environmental and health protection.

To successfully carry out the project involving the 1st phase of the restoration and revitalization of the smelting plant area, it was necessary in 2015 to fulfil the requirement that the smelting plant area and its pertaining facilities from the Idrija Mercury Mine– in liquidation be transferred into the ownership of the Republic of Slovenia. Based on the proposal of the Idrija Mercury Mine's liquidator and the resolution of the Slovenian Sovereign Holding approving the submitted proposal, the ownership right to the immovable property was entered in the register in September 2015 to the benefit of the Republic of Slovenia, and in February 2016 the smelting plant area was put into the management of IMHMC by resolution of the Slovenian Government.

## 5 Application to a call for proposals under the EEA financial mechanism programme 2009-2014 for the first phase of restoration and revitalization of the smelting area

On 27 December 2013 the Ministry of Economic Development and Technology of the Republic of Slovenia published a call for proposals for co-financing the projects entitled the Norwegian Financial Mechanism Programme 2009-2014 and the EEA Financial Mechanism Programme 2009-2014, in which there appeared an opportunity to apply for the reconstruction of the smelting area of the Idrija Mercury Mine under section B3 – Cultural Heritage. In 2009 the comprehensive reconstruction, preservation and revitalization of the smelting plant area had been assessed at EUR 7 million, where the 2009 engineering cost estimate for the entire investment, comprising construction-craftsmen's-installations works, had amounted to EUR 4.3 million. The construction project covered the rehabilitation and arrangement of the ore separation facility, conservation and restoration of the conveyor belt to the rotary furnace, restoration of the collection silo above the rotary furnace, reconstruction and restoration-conservation of the rotary furnaces, reconstruction of the condenser system, renovation of the smoke chamber and mercury filling plant, and conservation-restoration of the Čermak-Špirek furnace. Because the Idrija Mercury Mine, as the owner of the smelting areas and its facilities, was no longer able to apply to various calls for proposals from 2010 onward due to the implemented liquidation procedure, and because IMHMC would begin to operate at the beginning of 2014 and take over the activities and employees of the Idrija Mercury Mine, the Idrija Mercury Mine transferred by contract the smelting plant area into the management of IMHMC, thus making it possible to apply to the call for proposals under the EEA Financial Mechanism Programme 2009-2014. The Idrija Mercury Heritage Management Centre, in cooperation with the Idrija Mercury Mine, the Development Agency of Idrija and Cerkno (ICRA), and its two project partners, the Idrija Municipal Museum and the Norwegian Magma Geopark, both possessing experience in the conservation, protection and presentation of heritage, prepared and submitted by the deadline of 28 February 2014 a project application entitled »Idrija – Smelting Plant Area of the Idrija Mercury Mine – 1st Phase of Reconstruction« in a value of EUR 2,332,810 (construction works alone were estimated at EUR 1.6 million), of which the share of grant funds for co-financing of the project from the EEA Financial Mechanism Programme 2009-2014 amounted to EUR 2 million. The remaining funds were provided to IMHMC in 2015 by the Ministry of Culture as its own participation share in the project.

The opening of applications to the call for proposals, which was not public, was conducted by the expert committee of the Government Office of the Republic of Slovenia for Development and European Cohesion Policy in March 2014. The project for the 1st Phase of Restoration and Revitalization of the Smelting Plant Area received the highest number of points among 27 submitted projects, thereby acquiring the right to utilise all of the requested funds.

**Fig. 3:** Idrija Mercury Mine smelting plant area in 2007 (photo by Jani Peternelj, 'Heritage of Mercury. Almadén and Idrija' nomination dossier presented to UNESCO in January 2011).


**Fig. 4:** Drawing of 1st phase of reconstruction of the ore separation plant and construction of the visitors reception and exhibition centre (Rafael Bizjak, 2014); note: yellow section designates area that will not be realised in 1st phase.

## 6 Implementation of the project »Idrija – smelting plant area of the idrija mercury mine – 1st phase of reconstruction« in 2015

By resolution of the Government Office of the Republic of Slovenia for Development and European Cohesion Policy on the approval of the project and the granting of funds (Resolution no. 4300-288/2014/13 dated 30 December 2014), the project duration period began on 30 December 2014 and, in line with the approved extension of the deadline for completion, which in the application had been foreseen on 30 April 2016, will be completed by 31 December 2016.

**Fig. 5:** Construction works during 1st phase of Smelting plant project in May 2016 (photo: Tatjana Dizdarevič).

With the completion of the first phase of the investment, the 'From Ore to Mercury Drops' story links Anthony's Main Road to the smelting plant. Regretfully, the project's financial resources were not sufficient for the reconstruction of the Čermak-Špirek furnace and for the rehabilitation and presentation of the transport bridge, rotary furnaces, smoke chambers, and the mercury filling plant. The goals of the 1st phase of the project, which comprises the reconstruction and new construction of the existing ore separation facility, a new reception and exhibition centre for visitors, and the exhibition 'From Ore to Mercury drops', are:

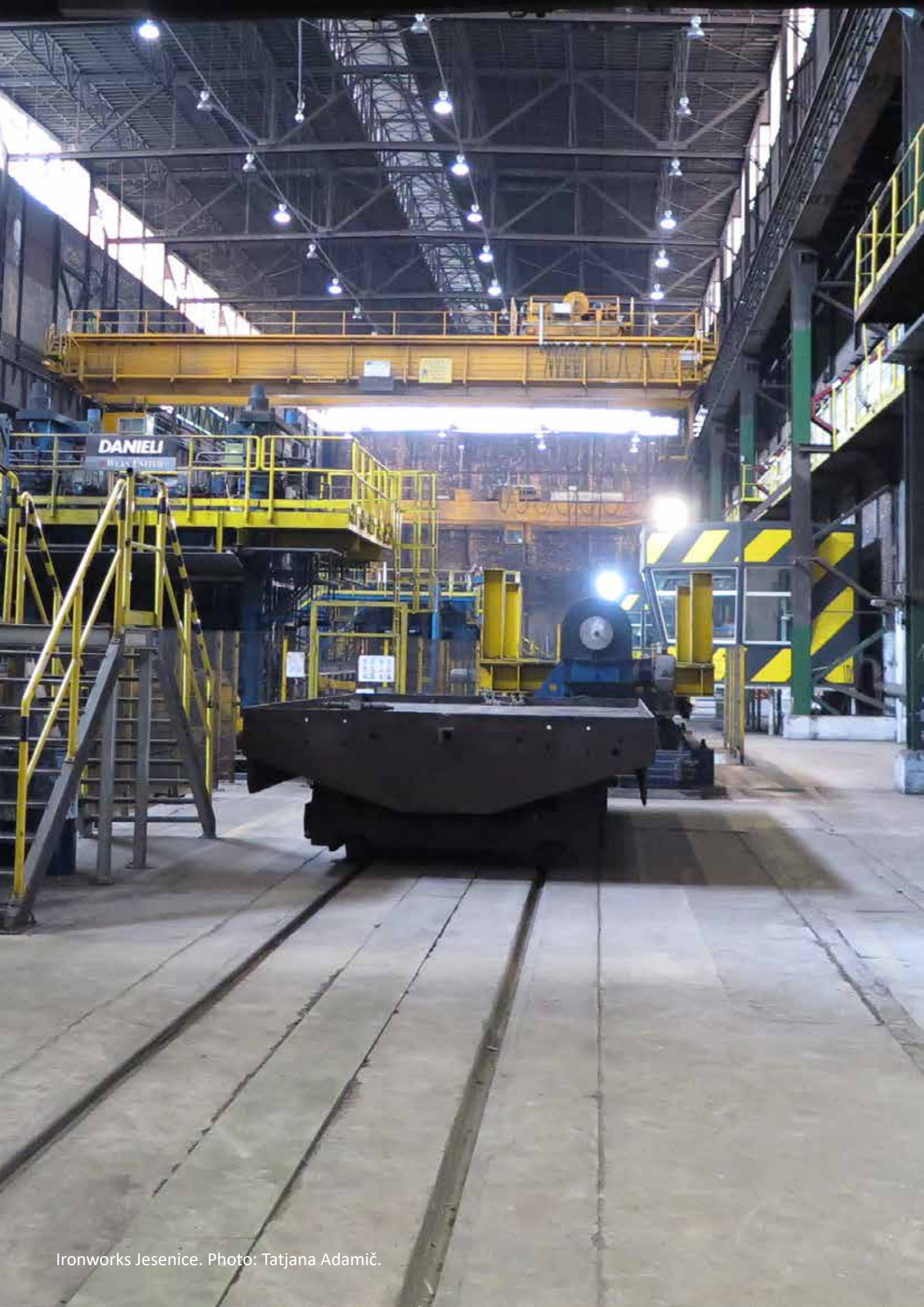
- to preserve and restore the cultural monument of national importance entered in UNESCO's World Heritage List, which, due to numerous factors, is vulnerable and in danger of losing its protected properties,
- to finally restore and present the machines and devices in the reconstructed ore separation facility with a demonstration of their functioning within the scope of the exhibition 'From Ore to Mercury Drops',
- to provide a modern, audio-video-virtual presentation of the 'Development of 500 years of smelting activities in Idrija' and 'All about mercury' within the scope of the exhibition 'From Ore to Mercury Drops',
- to increase awareness and knowledge about the significance of preserving cultural heritage, its maintenance, conservation and development possibilities,
- to enrich what Idrija has to offer through its revitalized cultural heritage and newly added content, educational and tourist programmes intended for different target groups, and in this way promote the recognisability of the area,
- to enable access to the cultural monument and its content to persons with special needs (most areas),
- to carry out the ecological rehabilitation of the smelting plant area due to the presence

of mercury (rehabilitation of the ore separation facility and the slope below the ore separation plant to the visitors reception and exhibition centre), and finally,
- to enhance local and regional development.

The project for the comprehensive reconstruction of the smelting plant area follows the principle of sustainability. After the completion of the 1st phase, the project will be continued with the aim of pursuing the objective of comprehensive restoration and revitalization of a monument of national importance entered in UNESCO's World Heritage List and supported by new funding, and will include the implementation of regular activities as well as the 2nd phase of restoration of smelting plant facilities, the planning of new enrichments in tourist services, and further increasing the number of visitors to the area.

## 7 Conclusion

Idrija has devoted intensive efforts in the past to preserving, presenting, informing about, and enabling accessibility to its mercury heritage, and has evidently managed to conserve a part of its diverse and unique technical heritage and to restore and present it in a manner enabling its promotion and marketing as an attractive product of the area. With the completion of the 1st phase of the reconstruction and revitalization of the smelting plant area, we are one step closer to the integral image of the preserved, restored and presented cultural heritage entered in UNESCO's World Heritage List. The 1st phase of reconstruction project can serve as a pilot model for an innovative approach to the protection of endangered cultural heritage not only in the national framework, but also in the broader European environment.




Ironworks Jesenice. Photo: Tatjana Adamič.

Slavica Stamatović Vučković

# Post-industrial Montenegro: Potentials of Industrial Heritage


## Summary

*This paper offers an overview of the present development scenarios of a certain number of industrial facilities and complexes in Montenegro after, more or less economically successful, privatization processes. The offered typology recognizes five different scenarios of the further development of these areas and facilities in the first two decades of the 21st century: from the industrial zones which have continued with the earlier production processes, however, in most cases in the reduced volume (Steel Factory in Niksic, KAP in Podgorica), through the zones for which there are planned multi-layer revitalization programmes ("New Obod" in Cetinje, 140ha) and those with the completely new urban amenities in place ("Porto Montenegro" in Tivat, 30ha); to rare, historically-architectonically valuable examples of industrial architecture which still await an adequate type of reconstruction and conversion ("Rivijera" in Kotor). These examples show that the industrial heritage potentials are great but also that, due to the lack of valorization and appropriate protective measures, they have mainly received negative treatment and have been partly devastated in the privatization process.*


## 1 Introduction

Before World War II, Montenegro had been an industrially underdeveloped area (in 1939, there were only 24 industrial businesses and craftsmen's workshops employing 1,355 workers)[1], and very few of the modest number of industrial facilities have been preserved, so the major portion of industrial heritage mainly dates back from the period following World War II, being related to the SFRY development strategy of the time[2], where industrialization and electrification were defined as "main postulates of development of socialism" [3]. Through the industrialization of Montenegro within SFRY, in the period following World War II, industry became the leading branch of economy. Development of industry from 1947 to 1989 provided for a considerable growth of production that increased by 79 times, and was, at certain intervals, the largest one in Yugoslavia at the time.[4]The share of industry in the gross domestic product amounted to only 5% in 1947, where in 1990, it increased to 35%. In the period 1956-1989, Montenegro was an area with intensive industrialization, when the number of companies increased from 58 to 169, and the number of employees from 7,000 to 57,000.

Abrupt industrialization of SR Montenegro at the time was followed by the "explosive growth of tourist industry, high-rise development of education system, health care and

1 "While in the period 1947-1990, industrial production in Yugoslavia increased by 27 times, the corresponding increase in Montenegro was by 123 times, or 11.6% per year.". In Rastoder, Š. "Nastanak i "nestanak" radničke klase", Retrieved February 29, 2012, from http://www.vijesti.me/kolumne/nastanak nestanak-radnicke-klase-kolumna-62729

2 Industry became the leading branch of economy, with an increase in production from 1946 to 1985 by around 30 times and a rise in overall social product by around 10 times, while the shary of industry in the social product in 1952 amounted to 22%, and in 1984, it was 42%. Production of steel increased by 12, and of rolled metals by around 15 times. Both by the volume and structure of industrial production, Yugoslavia made it to the group of the so-called newly-industrialized countries with dynamic industrial development, the growth rates of which, at certain periods, were among the highest ones worldwide. In 1974, Yugoslav industry employed 1 800 000 workers, or 8.3 workers per 100 population, getting closer to developed European industries. In Petranović, B. (1988). Istorija Jugoslavije 1918-1988: Socijalistička Jugoslavija 1945-1988, knjiga 3 (pp. 418 - 421). Beograd: Nolit.

3 Radojičić,B. & Čavor, V. (Eds.). (2003). Crna Gora: opšta monografija, (p. 77). Beograd, Podgorica.

4 Ibid.

other business activities“[5], which was strongly reflected in fast changes to the forms and structures of cities and urban areas, as well as in the change to the demographic and economic structure of population of Montenegro.[6] There was a growth of overall population in Montenegrin cities (until 1981, the growth reached 268.6% (compared to 1953)[7], “mostly through rural-urban migration flows“)[8].

All Montenegrin cities were, to a smaller or a greater extent, driven to develop in particular by some form of industry. Among the cities that were predominantly industry-oriented, the most prominent ones included Niksic, Titograd (Podgorica) and Cetinje in the central region of the country, Pljevlja and Ivangrad (Berane) in the North (closely followed also by Mojkovac, Bijelo Polje and Plužine), and Tivat, Bar, Ulcinj, Kotor in the South of Montenegro.

## 2 Tipology of industrial heritage in Montenegro – tipical post-industrial scenarios

The 1990s brought significant changes in the Balkans. War conflicts and dissolution of SFRY resulted in overall social and spatial devastation in nearly all parts of former Yugoslavia, followed by the process of privatisation in the newly formed states. This was primarily reflected in industry, as the fundamental branch of economy in the former joint country, and production processes having been temporarily or, more often, permanently blocked, which soon caused industrial buildings and complexes to become “spaces without contents“, as well as a new form of built heritage. On the other hand, the shift of the epicentre of global industries from the West to the East also caused, globally now, the phenomenon of the so-called “post-industrial“ cities, which added further interest to topic of abandoned industrial zones and prospective scenarios for changing their purpose.

When considering the industrial heritage in the territory of Montenegro, as an economic, social and spatial phenomenon, one could note several topical scenarios for further development of those spaces:

- **Continuity of industrial use** – industrial structures or complexes still in operation;
- **“Fragmented“ industry** – industrial complexes that are, mainly in part, still operational, but through some forms of small-scale business and manufacturing activities;
- **Conversion of purpose** – industrial facilities that predominantly changed their original purpose through a process of adaptation or some form of reconstruction;
- **Urban re-development** – complete disappearance of industrial complexes and structures and formation of a new urban matrix, most frequently for residential or tourist purposes;
- **“On-hold“ spaces** – industrial facilities which, given their historical-architectonic values, still await adequate reconstruction and change in use.

### 2.1 Continuity of industrial use – industrial structures or complexes still in operation

The most significant industrial complexes in the territory of Montenegro, such as, for example, “Boris Kidrič“ Ironworks, Niksic (construction period 1951-1962), or the Aluminum Plant (KAP), Podgorica (construction period 1968-1971), underwent privatisation at the

5 Bakić, R. (2009). Kretanje gradskog stanovništva Crne Gore u toku druge polovine XX vijeka i njegova bitna migraciona obilježja na početku trećeg milenijuma. In Vlahovic, P. (Ed.). Etnologija grada u Crnoj Gori, radovi sa okruglog stola (pp. 81- 82). Podgorica: CANU.

6 In 1948, there were 80,369 or 21.3 % of urban population in Montenegro and only one city with the population exceeding 10,000 (Podgorica -14,369 population), Ibid.

7 According to the censuses, the coefficients of urban development of Montenegro were, respectively: 1953 – 15.4%, 1961 – 21.5% and 1971 – 34.23%. Kostić, M. (2009). Obilježja dugoročnog kretanja gradskog stanovništva i standarda u urbanim sredinama Crne Gore. In Vlahovic, P. (Ed.). Etnologija grada u Crnoj Gori, radovi sa okruglog stola (pp. 23 - 29). Podgorica: CANU.

8 Enlargement of certain Montenegrin cities in the period following World War II: Kolašin – 19.3 %; Kotor – 69.1%; Mojkovac - 48%; Niksic – enlarged by 69.8%; Podgorica – 74.8%. Vlahović, P. (2009). Grad u Crnoj Gori i njegov etnološki značaj. In Vlahovic, P. (Ed.). Etnologija grada u Crnoj Gori, radovi sa okruglog stola (p. 18). Podgorica: CANU.

beginning of the 3rd millenium, and continued operating with decreased production within the new ownership structure.[9] The most notable example of continuation of industrial activities is Niksic in particular, the second largest city in Montenegro, a former industrial centre of Montenegro (also known as "the city of industry, steel and beer"). Its accelerated economic and urban development in the period following World War II, "at such a fast rate seen only in very few cities in Yugoslavia"[10]. Niksic owed to an abrupt development of industry – first, to begin with, there was bauxite production (1948)[11], then the "Boris Kidrič" Ironworks was built[12], being the largest industrial giant in Montenegro that employed around 7,500 workers[13], whereas the first Montenegrin brewery, "Onogost", built far back in 1895 (one of the rare forms of industry from the late 19th century in Montenegro), was reconstructed in 1946 as the "Trebjesa" Brewery.[14] All these industrial complexes have been privatised (some of them even more than once) and continued operating, but with constant financial problems, significantly decreased volume of production and reduced number of employees, employing even several times less workers than they used to. Continuation of industrial production exists also in other cities of Montenegro, most frequently so when it comes to some smaller forms of industry, such as, for example, "Industry of Bearings Kotor", which was relocated after the earthquake in 1979 from the seaside, core city zone of Kotor (Skaljari) to the newly formed industrial zone in Grbalj, and later continued with production, having undergone the process of privatisation, under the new name (Japanese company "Daido Metal")[15]. In general, however, examples of industrial companies that succesfully continued operating through the process of privatisation are rare and predominantly reduced to exceptions.

2.2 "Fragmented" industry - industrial complexes that are, mainly in part, still operational, but through some forms of small-scale business and manufacturing activities

The original activities/contents/purposes of abandoned industrial zones that have not been, or have been privatised only in part, become a distant memory, while the "empty" space, but supplied with infrastructure, actually constitutes a significant spatial and economic potential. For the aforesaid reasons, now mainly "fragmented spaces" continue to operate as "fragments". Thus, spaces with smaller areas and volumes, arisen from the division of industrial halls or complexes (respective structures or entire zones), are mostly rented for private business activities that such spaces are suitable for. Those are mainly smaller manufacturing and craftsmens' workshops, printing offices, companies for manufacturing and selling construction materials, various storage spaces and the like. The best example of this model operating is the factory complex "Titex" in Podgorica, which accomodates several different forms of business activities.[16]

This scenario for the "fragmentation of former industrial spaces" has also been designed as a special urban development and planning "model" used to form the so-called "business

9 The current owner of the ironworks in Niksic is Turkish company „Toščelik". Retrieved June 08, 2016, from http://www.vijesti.me/ekonomija/nova-sansa-za-nekadasnjeg-giganta-zeljezara-postala-toscelik-niksic-77805. Russian company CEAC owned KAP, Podgorica, from 2005 to 2014, when it was sold to the "Uniprom" company, Niksic. Retrieved June 08, 2016, from http://www.mans.co.me/podgorica/

10 Bulajić, Ž. (1972). Moderne osnove Nikšića. In Kalezić, D., Bošković, M. et all. (Eds.). Nikšić, (p. 130). Zagreb: Grafički zavod Hrvatske. Beograd: Monos.

11 „Bauxite mines Niksic, one of the largest companies for the production of red bauxites in Europe, founded on 24 September 1948". Ibid, p. 44.

12 „... based on a decision of FPRY dated 16 December 1950, the Ironworks in Niksic was founded as a state-owned business organization of general importance. Its construction started in Rudo Polje, 1951, and lasted for a whole decade.". Ibid, p. 45.

13 Kalezić, D., Bošković, M. et all. (Eds.). (1972). Nikšić. Zagreb: Grafički zavod Hrvatske, Beograd: Monos.

14 The "Trebjesa" brewery is the first privatized company in the territory of Montenegro (1996), constituting today, having had two previous owners, a part of a Canadian-American company "Molson Coors Brewing Company". Retrieved June 08, 2016, from http://www.vijesti.me/ekonomija/kanadski-molson-coors-novi-vlasnik-pivare-trebjesa-67663

15 Retrieved June 08, 2016, from http://mans.co.me/niksic/

16 Company "Titex" was founded in 1978 through a merger of the company "Pamučni kombinat" (1963) and company "Trikotaža" (1964). Today, a part of the shares is owned by the Investment Fund "Trend" ad. Podgorica.

incubators" zone, and applicable in particular to the former industrial zones in the cities of Northern Montenegro, where, due to the lack of interest and major investments, the total and swift change of purpose of the overall space is not possible. In that respect, a particularly interesting example is the large industrial zone in Berane, for which an adequate planning documents have been designed and the related works are in progress.

Berane (former Ivangrad)[17], little town in North-East of Montenegro, also started developing after World War II, mainly in the Northern zone of the City, called Rudes, between the rivers of Lim and Budimska. First, the brick and tile factory "Rudeš" was built in Budimlje, 1946, then plant timber industry "Lim", 1954, followed by plywood factory (1960) and leather factory "Polimka", 1962, in Rudes.[18] In the period from 1959 to 1964, the largest industrial giant in Berane was built, too - pulp and paper sulphate factory "Ivangrad", for the construction of which more than 22 billions of then dinars were spent; design documents were developed in several cities of former SFRY - Zagreb ("Plan", "Energoprojekt"), Ljubljana ("Industrial Biro") and Belgrade ("Morava"), while contractors were KMG "Trudbenik" from Belgrade and GP "Crna Gora" from Niksic.[19] During late 1960s, the industrial zone in Berane was fully defined, and it is notable that it constituted between one fourth and one fifth of the overall area of the City of Berane at the time.[20]

With constant problems mostly relating to insufficiently trained labour, as well as difficult transport of final products (rail infrastructure was planned, but never built), pulp and paper sulphate factory "Ivangrad" used to manufacture, all through to mid-1980s, even up to 30,000 tons of pulp and paper sulphate per year and employed between 1,300 and 1,800 workers.[21] During 1980s, a group of specialists from the Institute of Socioeconomic Research and Faculty of Economics in Podgorica conducted an analysis of the factory's business operations, which showed that the company was suffering losses, but also indicated serious environmental problems (exhaust flow of hazardous substances into the river of Lim, general pollution of air, land and underground waters, etc.), so that the factory was closed in 1989.[22] Neither the attempt to renew production in the period from 1996 to 2004, under modified conditions and with several times less number of workers (only 250 employees), did produce positive results. The main part of the factory was eventually privatised in 2004 and some form of production existed all through to 2010, when the factory was shut down completely. Today, the only facilities of the old industrial production still operating in the overall industrial zone of Berane are the plywood factory and brown coal mine.[23]

In the new millennium, the industrial zone in Rudes started to embrace, spontaneously and without planning, new "semi – urban" facilities needed for a developing town, such as discoteques, concerts, motorcycle races, etc. In addition, along the rim of the zone, in the riverbank area of Lim, a small residential settlement "Riverside" was also built in 2001, consisting of 26 smaller structures for displaced Roma people from Kosovo, with financial support of the international organisation "World Vision" (WV). A more serious attempt to revitalise the industrial zone is based, however, on the development strategy defined by the local self-government, primarily through the design of adequate planning documents - Local Study of Location (LSL) - "Business Zone", 2013-14, for the area of 16.6 ha, with the idea of forming the so-called zone of "business incubators".[24] This planning document envisages "re-parceling" (fragmentation) of land, i.e. formation of smaller lots, resulting in the establishment of a new, "fragmented" urban matrix relying on the existing infrastructural network. The plan encompasses 19 industrial structures, of which seven are envisaged to

17 Berane had changed its name to Ivangrad after Ivan Milutinovic, a national hero, on Liberation Day, 21 July 1949, whereas in 1992, the old pre-war name of the City was restored.

18 (1967). pp. 29 – 35. (old materials, no information about editors, authors, publishers)

19 "… and for the construction of apartments one billion and 92 million old dinars." Ibid.

20 Radović, M., Bakić, R. et all. (Eds.). (2012). Berane, opšta monografija: povodom 150-te godišnjce Berana. (pp. 323 – 339). Berane.

21 Ibid, 327.

22 Ibid, 329.

23 The exploitation of brown coal ore was started by Austrians in 1917. The brown coal mine in Budimlja was also privatized several times, the last one being in 2014.

24 Planning documents designed by RZUP – Republic Bureau of Town Planning and Designing ad., Podgorica.

be used again, and 12 to be demolished (due to extremely bad condition of the facilities). Newly formed lots vary in area, depending on the existing facilities and infrastructure (the total of 43 lots, the area ranging from 900 m2 to 6,450 m2), where it is possible to build structures for business purposes only (basic purpose)[25], the floors including basement, higher ground floor, first floor (maximum height up to 12m). (Figure 1)

**Fig. 1:** "Re-parceling" and formation of new urban matrix with "Business incubators". (Local Study of Location (LSL) "Business Zone", 2013/2014, retrieved from Republic Bureau of Town Planning and Designing ad., Podgorica; Photo by B. Lutovac).

## 2.3 Conversion of purpose – industrial facilities that predominantly changed their original purpose through a process of adaptation or some form of reconstruction

This scenario can be noted at the level of individual facilities (the small-scale revitalization) – the example of conversion of the old grain silo in Niksic; as well as on the level of bigger industrial complexes (the big-scale revitalization) – the example of the town Cetinje which, as the old royal capital and a cultural center, undergoes an intensive process of general revitalization, among other things through the conversion of former industrial complexes (the Old and the New Obod).

The old silo in Niksic, constructed in 1935 for grain storage of the then agricultural cooperative (probably also used for the warehousing needs of the railway station of that time), represented one of the rare preserved facilities of the industrial architecture from the period between the two world wars.[26] After years of non-usage, the silo was converted into a space for commercial use (a hypermarket with the accompanying services)[27], and a simple cubic form of the silo, one of the verticals of the citry landscape of harmonious proportions, has obtained a new "brand envelope". The unobtrusive grey colour of the ferro-concrete has been replaced by a coating of the aluminiujm panel in bright red colour, which is the "brand colour" of the owner's company. The potential of the modernistic marking of the silo as the "town's symbol" (followed by a five-pointed star and a simple signboard in

25 The so-called complementary purpose is also possible (commercial and catering facilities, accommodation and healthcare structures, kindergarten, etc, but in accordance with their basic purpose only). In addition, administrative spaces can occupy up to 30% of the total area of the facility. Retrieved from LSL „Bussines Zona", part "Smjernice za izdavanje urbanističko-tehničkih uslova", (p. 26). RZUP – Republic Bureau of Town Planning and Designing ad., Podgorica

26 Stamatović Vučković, S.; Kujundžić, K.; Bojković V. (2012). Valorization and revitalization potentials of the industrial buildings in Montenegro. In III Conference Industrial Heritage – Problems and Opportunities of Integrative Protection, Presentation and Revitalization, Belgrade, November, 2012. Marković, S.D. (Ed.) Belgrade: Institute for Protection of Cultural Heritage of Belgrade, CD - ROM.

27 The facilities have been purchased by a successful domestic company "Voli" d.o.o. from Podgorica.

cyrillic “СИЛОС“), unfortunately, has not been made use of. Instead, it was replaced by decadent uniform materials which bear no meaning. The new, “brand red“ vertical in the town landscape successfully “competes“ with the dome and the bell tower of the church dedicated to Saint Basil of Ostrog, which is in its close vicinity. Despite the fact that this example might be characterized as „a successful business investment“ in the architectonic-spatial planning sense, especially at the level of the town landscape, the new look of the silo has actually devastated the urban space of the town. (Figure 2)


**Fig. 2:** The old silo in Niksic, 1935 – The new envelope and unsuccessful “remarking“ of the town landscape (Left photo by Enciklopedija Jugoslavije, tom 2. (1956), Zagreb: Leksikografski zavod FNRJ, p. 462; Right photo retrieved June 10, 2016, from http://www.ramel.me/page.php?cat=5).

Following the recognition of Montenegrin independence at the Berlin Congress in 1878, Cetinje became the capital of the newly-formed state and started a fast development. However, after WWII Cetinje lost the role and the importance as a political and cultural center of the Montenegrin state (it stopped being a royal capital). Instead, the seat of the republic and a cultural and administrative center was moved to Titograd (today’s Podgorica). This change led to slowed activities of economic entities and social trends and it caused a “serious crisis of the town’s general development“[28]. Furthermore, with an almost forceful introduction of industry as the basic economic activity, the cultural-tourism potentials of the town and its environment were completely neglected. Only at the beginning of the 80-ies of the 20th centrury did Cetinje start its economic recovery. However, this period was short lived due to the situation in the region and disintegration of the SFRY.

The most significant economic facilities in Cetinje were: the facilities of Elektroindustrija (a fridge factory), the ”Old Obod” (1953)[29] in the very center of the town, the ”New Obod” and the shoe industry “Kosuta” (1963), constructed “outside the town“ in the settlement Donji kraj (which is nowadays a part of the town but outside the original city core). The industrial complex of ”New Obod” was constructed based on the project of the architect Vojislav Damjanovic, “in glass and concrete, with the use of modern technology and the architecture of clean, attractive forms of constructivism” and it is considered as “one of the most successful achievements of its kind in Yugoslavia”[30], which provided employment for up to 3,000 employees and had the record production in 1988.

When it comes to the ”Old Obod” location, there was a public competition in 2008 for the Urban Design solution for the university complex of the Faculty of Arts (this space was out of function for 25 years)[31]. The university complex, on the floor area of 3,15ha, should

28 Martinović, D., & Martinović, U. (1980). Cetinje: spomenici kulture (pp. 151-153). Cetinje: Obod.

29 The “Old Obod“ was created as a result of the adaptation of the facilities of the old Laboratory – at the initial period it produced: soap, shoe polish and fluorescent lamps, installation materials, electric meters and small appliances. Ibid.

30 Ibid.

31 The Competition Authority was the University of Montenegro and the Organizer was the Faculty of Fine Arts Cetinje. The art faculties are currently located in the ex-embassies of Russia, great Britain and Turkey, in the historical center of Cetinje which belong to protected cultural heritage. The existing facilities in the spatial and

contain there following: Faculty of Fine Arts, Music Academy, student dormitory and joint facilities of the floor area of cca 8,600 m$^2$. Given the fact that the current facilities had no significant architectonic value, it was possible to make more radical interventions on them. The winning bid proposed to retain a certain segment of the existing facilities and with the construction of the bypass road a fluid connection with the downtown has been achieved.[32] The realization of one segment of the complex started in 2010. However, due to the lack of financial means, its progress is quite slow and with uncertain deadlines. (Figure 3)

**Fig. 3:** "Old Obod" in Cetinje: before 2010 (left); 1st Award Urban Design solution for the University complex of the art faculties, 2008 (right) (Retrieved from The Catalogue of Competition Papers, Plavi dvorac, Cetinje, March 2009).

The Master Plan of polyfunctional center "Marina Abramović Community Centre Obod Cetinje'' – MACCOC – the so called "Unfreezing of Cetinje" is of special importance for future development of Cetinje, where the location "New Obod" will be used for the establishment of complementary economic and cultural-educational activities in the space of cca 140,000 m$^2$. The idea is that MACCOC should serve as a place for the production, presentation, distribution and development of different forms of art: performing arts, fine arts, film and video, music and opera, theatre, as well as for the stimulation of interest in architecture, science and new technologies, which includes the transformation of old industrial production (household appliances - refrigerators) to new sustainable design technologies - production of solar panels. Besides, the Center is envisaged for socio-educational programs, ecological programs and programs related to networking and cross cooperation, and the contents of the center will be versatile: bookstore, media library, archive, publishing house, hotel, offices for rent, etc. It is of special importance that the project was launched by the world famous artist Marina Abramovic[33], as well as that the head of the project team for the design of the Master Plan is also a world famous architect, Rem Koolhaas (the director of Office for Metropolitan Architecture - OMA) together with Shohei Shigematsu, the head of AMO, the New York OMA office. (Figure 4, 5 and 6)

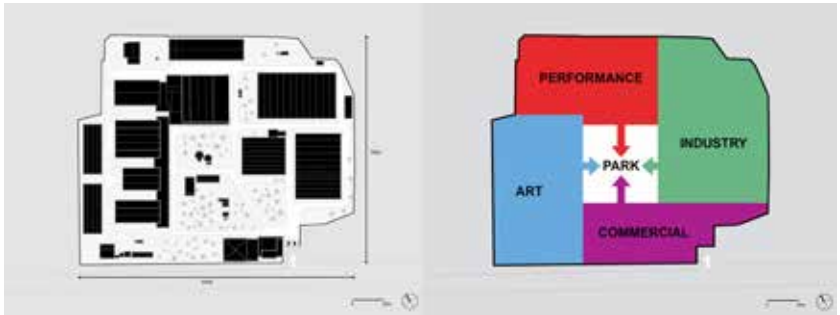



**Fig. 4:** "New Obod" in Cetinje: Existing industrial complex plan (left), program scheme of MACCOC (right) (Presentation of OMA, Cetinje, September 2012, retrieved from Municipality of Cetinje).

organizational sense are not suitable for educational activities and that is why the initiative for the establishment of the university complex of the art faculties at the location of the former industrial complex "Old Obod" was launched.

32 The author of 1st Competition Award was architect Andjelka Badnjar from Podgorica.

33 Marina Abramović has Montenegrin origin.

The revitalization strategy of this vast industrial complex actually leans on two basic elements: on the one hand, the engagement of world famous names in the fields of art and architecture (Marina Abramovic, Rem Koolhaas), and on the other, the variety of contents from cultural to industrial production (new technologies) which are compatible and based on the principles of self-sustainability.[34] However, following the public presentation of the Master Plan in Cetinje in September 2012, which was attended by high representatives of the Montenegrin government and members of diplomatic circles, as well as the artist Abramovic and the authors of the Plan, no significant steps in its realization have been made since.

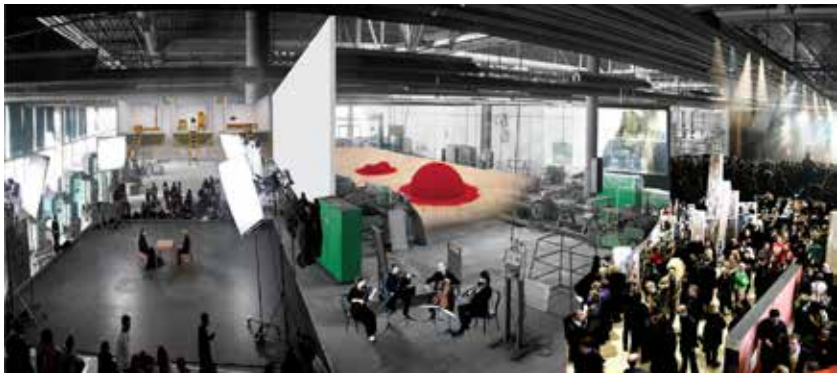


**Fig. 5:** "New Obod" vs. MACCOC center: industrial space turned into the space of artistic production (Presentation of OMA, Cetinje, September 2012, retrieved from Municipality of Cetinje).

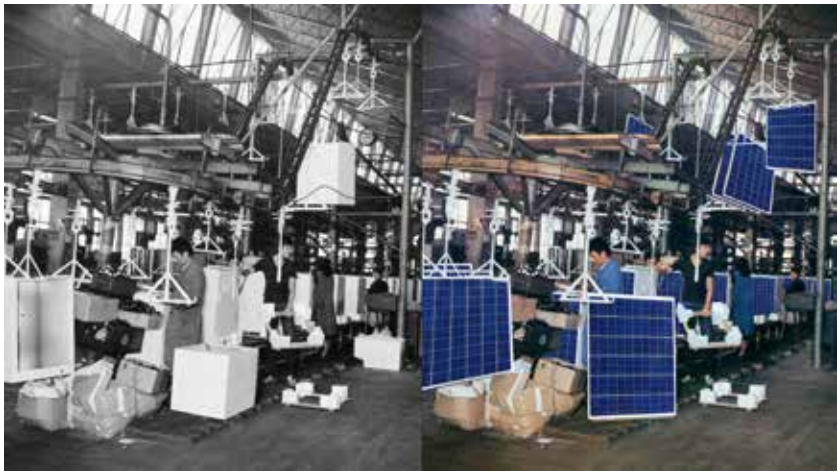


**Fig. 6:** MACCOC center – The transformation of industrial production: from household appliances (left) to solar panels production (right) (Presentation of OMA, Cetinje, September 2012, retrieved from Municipality of Cetinje).

## 2.4 Urban re-development – complete disappearance of industrial complexes and structures and formation of a new urban matrix, most frequently for residential or tourist purposes

The establishment of a completely new urban matrix in the former industrial areas is characteristic primarily for Podgorica (due to constant migrations from all parts of the country to the capital, the need for residence zones increases) but also for certrain towns in the Montenegrin south which thus obtain the space for the development of tourism-service activities (the example of Tivat).

34 Kujundžić, K., Stamatović Vučković, S., Bojković, V. (2013). Contemporary revitalization strategies for the industrial heritage in Montenegro. In International Scientific and Practical Conference - Issues of Preservation and Continuity of Architectural and Urban Planning Traditions in Modern City (pp. 131 – 142). Rusija: Volgograd.

In the area of Podgorica former industrial zones disappear mainly as a result of the construction of commercial or residence-business blocks, such as: Shoping Mall "Delta City" (2008), on the premises of the former furniture factory "Marko Radović"; residence-business block "Čelebić" on the premises of the former smelting factory "Radoje Dakić" (1963); business-residence building of "Zetagradnja" (2014) on the premises of the former city dairy factory (1961). The planning-project documentation has also been prepared for the tobacco factory zone, which also envisages the construction of a business-residence block.[35]

The most radical re-urbanization and, at the same time, the most successful privatization on the territory of Montenegro is related to the segment of the central coast of the Boka Bay, i.e. the transformation of the military shipyard Arsenal in Tivat into the nautical-tourism complex "Porto Montenegro"[36]. The Maritime-technical Shipyard "Sava Kovačević" was established in 1889 as a maritime Arsenal for Austro-Hungarian navy. In 1921 it became a part of the Navy of the Kingdom of Serbs, Croatians and Slovenes. Following WWII it became a part of the Yugoslav Navy. The shipyard was engaged in the repair of ships and submarines, construction of small ships and military pyrotechnics. It had 1,000 to 1,300 employees and it represented the basic development force of Tivat in the second half of the 20th century.[37] However, only in 2007, when it was privatized[38] and when it finally became "a part of the urban tissue" with a 2 km long and 2 m high wall, i.e. the fenced and inaccesible 30 ha of Arsenal space, did it stop to represent a space blockade which directed the development of this part of town towards the hinterland instead towards the coast.[39]


**Fig. 7:** The disappearance of industrial heritage: the old dairy factory in Podgorica becomes a residence-business zone (Retrieved May 15, 2016, from http://www.skyscrapercity.com/showthread.php?t=868232&page=10(left); http://www.fujitsuklime.com/zetagradnja-podgorica (right)).

"Porto Montenegro" has become a luxurious tourism complex with a super yacht marine (450 berths), residential amenities (marina-side shopping village), swimming pools, condo-hotel "Regent", a museum and other amenities, such as luxurious shops, restaurants and cafes, galleries, sports clubs, business premises, international school, etc. (Figure 9) From previous industrial facilities, the only preserved one is the old concrete and steel construction for repairing ships and submarines in its original shape, currently turned into a museum which exhibits the industrial heritage of Arsenal – objects, tools, and machines which were used in the past production processes (naval heritage collection)[40].

35 UP "Duvanski kombinat", Podgorica, 2012 ("Urban projekt", Čačak, Srbija)
36 This important "spatial transformation" was presented at the first independent presentation of Montenegro at 9th Architecture Biennale in Venice in 2008 (Exhibition Commissioners: Radović G., Keković A., Stamatović S.)
37 Mutevelić, I. (Ed.). (1989). Mornaričko-tehnički remontni zavod „Sava Kovačević", Tivat (1889-1989). Tivat: Mornaričko-tehnički remontni zavod „Sava Kovačević". Mostar: Prva književna komuna.
38 The company "Adriatic Marinas" d.o.o. was the owner of "Porto Montenegro" from 2007 (Canadian business-man Peter Munk), to May 2016. The new owner is Investment Corporation of Dubai (ICD).
39 Radovic, G. (2008). Transformation: Arsenal-Porto Montenegro. In Radović, G. (Ed.). Transformation - From the Arsenal to Porto Montenegro (pp. 98 – 103). Podgorica: Arhitektonski fakultet Univerziteta Crne Gore, Ministry of Culture, Sport and Media Crne Gore.
40 Pejaković Vujošević, M. (2008). The Nautical Museum – Keeper of the Arsenal industrial heritage. In Radović, G. (Ed.). Transformation - From the Arsenal to Porto Montenegro (pp. 123 - 128). Podgorica: Arhitektonski fakultet Univerziteta Crne Gore, Ministry of Culture, Sport and Media Crne Gore.

**Fig. 8:** Military shipyard "Arsenal" in Tivat, 1989 (Retrieved from Mornaričko-tehnički remontni zavod "Sava Kovačević", Tivat (1889-1989), 1989, p. 8).

At one of the jetties (Jetty 1), an Old Crane was preserved and it has become one of the "Porto Montenegro's" symbols. As part of "Porto Montenegro" there is also a valuable postmodernistic facility (a former military compound of the Yugoslav Army, 1989, arch. A. Djokic) which is used as the administrative headquarters.

**Fig. 9:** "Porto Montenegro" – a luxurious nautical-tourism complex with the super yacht marine, 2016 (Retrieved May 15, 2016, from www.portomontenegro.com ).

Although with the "fall of the Arsenal wall"[41], the long-time introverted and isolated military compounds finally obtained an opportunity to become an integral part of the town through new, versatile amenities, a true social-spatial integration of this area and the central urban nucleus has not been fully achieved yet. Paradoxically, former Arsenal, although isolated with the concrete wall, used to be an inseparable part of the town and its inhabitants' identity while contemporary "open" amenities, as a "product" offered to the "guest-tourists" exclusively and not to the primary citizens, still have not reached that level, unfortunately.

2.5 "On-hold" spaces – industrial facilities which, given their historical-architectonic values, still await adequate reconstruction and change in use

Rare industrial facilities which date back to the first half of the 20th century, such as a

41 Stamatović, S. (2008). Space control - The Wall. In Radović, G. (Ed.). Transformation - From the Arsenal to Porto Montenegro (pp. 103 – 113). Podgorica: Arhitektonski fakultet Univerziteta Crne Gore, Ministry of Culture, Sport and Media Crne Gore.

former soap factory “Rivijera” in Kotor (Skaljari) from 1926, although privatized, have still not been awarded appropriate use.[42] The factory “Rivijera”, the oldest industrial facility in Kotor, stopped working after a devastating earthquake in 1979. Still, the necessity to preserve its primary physical structure and its significance, have been stated in the guidelines of the General Urban Planning document Skaljari: “due to the historical significance of the factory for the development of industrial architecture, it is necessary to retain the segments from the first and second phase of the complex construction”[43]. From a historical, architectonic and town planning point of view, the industrial complex of “Rivijera“, which is in a very bad condition nowadays, represents a very important facility. The attractiveness of the location (in the closest vicinity of the town nucleus), of the floor area of 2ha, as well as its open view towards the Old Town and the sea from the higher floors, represent important development potentials for the future reconstrction in which this facility should be adapted for adequate cultural-tourism use.[44]

## 3 Conclusion

Despite the industry’s evident influence on the creation of the socio-cultural identity of Montenegrin towns (often directly linked to the primary development of certain towns), the industrial heritage in Montenegro is neither valorized nor systematized and, consequently, it is not under the appropriate protrective measures, either of the local or national character. This is actually the main reason why the industrial heritage potential in Montenegro is not adequately recognized and why the industrial zones, following the privatization process, were treated exclusvely as a spatially and not also as a historically-architectonically valuable resource. The conversion of one segment of the industrial zone in Berane through space “fragmentation“ is exclusivelly for industrial purposes and, unfortunately, it excludes cultural valorization and the implementation of protective measures for certain facilities. In the new luxusurious tourist complex with a marine in Tivat (“Porto Montenegro”), only one industrial facility has been preserved and the “memory of the location” (Arsenal) is not sufficiently recognized or offered as an additional cultural-tourist amenity, which has, among other things, led to a hindered integration of the new amenities in the overall life of the town. The activities on the construction of the art academies at the location of “Old Obod” in Cetinje have recorded a very slow progress while the ambitious, multi-layered program for “New Obod” still awaits the start of its realization, despite its well-thought concept and star-names who stand behind it. The above mentioned examples warn that one segment of the industrial heritage of Montenegro has been irrevocably lost and that it is high time to recognize these areas and facilities as a real cultural potential, to adopt adequate protective measures and guidelines for their further development and thus to establish the right, responsible and sustainable cultural policy towards this segment of the cultural-historical heritage.

42 The new owner Henkel Industry Riviera d.o.o. planned to construct a shopping mall. However, it never came to the point of realization due to the disputes with the municipality of Kotor with respect to the ownership over the plot of land.

43 General Urban Planning document Škaljari, (GUP Škaljari, Kotor, AG info plan: 2010), p. 20. Retrieved November 15, 2012 from http://www.cg.opstinakotor.org/images/stories/dokumenti/urbanizam/usvojeni_planovi/2.%20GUP%20Skaljari/GUP_SKALjARI-Tekst.pdf

44 Stamatović Vučković, S.; Kujundžić, K.; Bojković V. (2012). Valorization and revitalization potentials of the industrial buildings in Montenegro. In III Conference Industrial Heritage – Problems and Opportunities of Integrative Protection, Presentation and Revitalization, Belgrade, November, 2012. Marković, S.D. (Ed.) Belgrade: Institute for Protection of Cultural Heritage of Belgrade, CD - ROM.

Hydroelectric power plant Fala. Photo: Miran Kambič.

Blerta Spahija, Ramadan Aliu, Safete Veliu

# Industrial Heritage as Potential for Sustainable Economic Development


## Summary

*Industrial heritage exists in all phases of human development. As an important part of industrial culture, industrial heritage includes a wide range of social, architectural, technological and historical values. Heritage product in industry should be understood as a dynamic process which can benefit from a better integration of the relevant knowledge bases. This integration concerns the possibilities of improving levels of cooperation between modern industry and industrial heritage sites.*

*There has been a significant degree of urban regeneration since the end of the Second World War, with abandoned industrial buildings built during the 1940s and 50s the main focus of heritage protection; this happens because of the structural changes of abandoned buildings, and another important factor in urban regeneration is continuous economic development.*

*One of the most economically deprived cities after the war in Kosovo was Gjakova, which industrial heritage before the war had developed in that degree to import workforce from other countries. This presentation will focus on the re-use of an old textile factory in Gjakova, the first factory to open in the city after the war had concluded. The factory was closed for 15 years, and commenced operations in 2015 as a factory for producing textile products for Volvo and Volkswagen.*

*The purpose of this paper is to study the importance of reusing industrial heritage in order to contribute to the sustainability of the country's culture, history and economy, and the methods to be followed in order to achieve this.*


## 1 Introduction

Kosovo's heritage is been created between ancient civilizations and that after the new era, which inherits a rich cultural treasure, and is part of world cultural heritage.

Cultural heritage: "The expression of lifestyle, a community developed and passed from one generation to another, including practices, places, objects, artistic expression and values". Cultural heritage is often expressed as intangible and tangible. It can and is presented as "Knowledge of the historical and cultural background in which works of art are created, including socio-economic aspects, political, intellectual, ethnic, religious or philosophical"[1]. Cultural heritage is part of the industrial heritage. It deals with industrial buildings and artefacts, which are inherited from the past, today are maintained and are preserved for future generations, forming an attraction for tourism. Over the last two centuries in Kosovo, industry has been one of the key factors which has contributed to the development of society and the modern environment. The influx of industrial buildings construction in our country began from years 50 to 90 of the XIX century. The study point of this paper is going to be problems, dilemmas and examples of industrial heritage, ways of reusing it, and the importance of re-functioning these facilities in the economic and social development. The reuse of the textile factory in Gjakova, which was built during the 60th and has been reused 15 years after the war, is one of the leading examples that will be discussed in

1 ICOMOS, International Cultural Tourism Charter. Principles and Guidelines For Managing Tourism At Places Of Cultural And Heritage Significance. ICOMOS International Cultural Tourism Committee. 2002. Retrieved from: http://www.cultureindevelopment.nl/cultural_heritage/what_is_cultural_heritage

this paper. Also, there are taken several examples of industrial heritage in Kosovo and are mentioned the evolution of them, during the years. This paper will show the importance of this heritage in architectural, social, historical and technological development. This will be achieved by ensuring consistency in economic aspect, and making people aware of preserving this treasure, which would be a guarantee of success for recognition and development of the country.

## 2 Industrial Heritage in Kosovo

*"Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains 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"[2].*

Industrial heritage constitutes a nation's history. Whole generations have contributed over decades, by producing objects and places that served in the future leaving traces in society and in a country landscape. Kosovar industry until the late 80s reached a considerable level of development but in the 90's, it stagnated in development, production, employment, export etc. This stage and also the war led to lower industry of state-social sector. After the war, Kosovo was able to serious economic and social, in providing state of emergency, which required a lot of things. After emergency began the stage of commercialization process to factories which did not go as planned. "We must recognize that industry with its enormous buildings is no longer a disturbing link in our townscape and our landscape, but a symbol of work, a monument of the town, which every citizen should present to the foreigner with at least the same pride as his public buildings"[3].

Fast developments of the cities, often in the name of economic development have obvious risk negligence and loss of cultural and industrial heritage, which is diverse and very rich. This affects the loss of objects called "old", "unmodern" but that establish the industrial heritage of a city or a country, which must be protected and preserved with special care. Urban revitalization in recent years is focused on the protection of this heritage because after the last war most of these buildings are neglected and abandoned, being replaced with new facilities of the time, called "modern", and in the same time risking heritage which refers to the history of a particular time.

## 3 Kosovo industry

Kosovo is located in Eastern Europe, which is characterized by the central position in the Balkan Peninsula, with 10,907 km² area in which live about 2.4 million people[4]. Kosovo plays a strategically important position in Europe, also good geographical position of our country allows the diversity of natural resources, which are very important for economic and industrial development. Conversely, Kosovo is noted for consecutive conquests who have contributed to it to be one of the most backward countries in terms of economic and industrial development, today. This resulted, that the population focused more in rural parts than in urban areas.

The level of economic and industrial development of Kosovo in the former Yugoslavia was extremely low compared to the average, particularly in developed regions. As a result of the discriminatory colonial politics of former Yugoslavia, Kosovo was left out of any process of industrial, economic and social development.

2 (TICCIH): http://www.mnactec.cat/ticcih/pdf/NTagilCharter.pdf, accessed 20/07/2009).
3 Fritz Schupp (1896-1974) (was a German architect. His best known work is the Essen coalmine Zollverein, today World Cultural Heritage).
4 According to the OSCE in 2000.

Before the 50's of the 20 century, Kosovo was predominantly agrarian country, with few industrial facilities. The first phase of industrial development in Kosovo began with a small number of buildings, which developed mainly tobacco, wood and textile industry. With the development of these branches until the 1980's, industry visibly changed, being stagnated in the 1990's due to the critical situation.

The period after the war brought Kosovo in a very serious social condition. At that time, the industry fell in the transition process, which began re-functioning for a small number of factories. Also, the process of privatization in Kosovo began late in 2002, which still did not bring the expected results of industrial development.

## 4 Industrial heritage at risk

Many buildings and proven industrial heritage areas everyday more are losing their value. In many cities of Kosovo we cannot identify old city centers or old industrial areas, after they have been completely destroyed. We are living in a time where everything is developing very rapidly. This development is destroying the old industrial areas which have great importance for the country's heritage. From the great influx of uncontrolled constructions, buildings with certain values have disappeared and are in the process of endangering. Industrial heritage of our country is endangered by the disappearance and replacement with new buildings.

Therefore should be taken immediate action for the preservation of this heritage. This is achieved by organizing a strategy through which are planned restoration methods and protect monuments by construction of modern buildings. This approach will make the urban environment improved, and will ensure a sustainable future for industrial heritage while maintaining their values.

## 5 Mill as a first industrial building in Kosovo

Haxhi Zeka's Mill complex was built in the second half of XIX century. Except architectural and constructive importance, the facility has great historical and social significance. In this mill was held League of Peja, and a part of the League of Prizren which were very important in the history of Kosovo.

Mill was one of the first industrial buildings in Kosovo which served for the practical needs of the time. The construction of this kind of building proves the level of technical and technological development of the first industrial facility in Kosovo, where work tools for this mill were imported from west countries. Originally the building was built by the owner Haxhi Zeka with the help of Austro- Hungarians. Mill complex is built in a very functional urban area. This complex consists of six additional facilities that exists in the cadastral documentation of the year 1932. Part of this complex are: mill, three-store tower, rooms for guests, mill warehouses and animal barns. Mill has a characteristic architectural appearance built in oriental style (Fig. 1).

It was constructed with stone, brick, lime and wood. At the beginning the mill operated through the water and later it used the electricity with capacity of 2000 kg for 24 hours. Mill worked for the needs of the city and around the country. Mill was burned down twice, once in 1994, but eventually destroyed in 1998 by the Serbian occupying power. The restoration of the mill was in 2004. Today mill serves as a museum for different visits, conferences, seminars, symposiums etc. Also restoration of the mill and its reuse has made this industrial heritage great benefit for its citizens, and at the same time it preserves the value as a building and irreplaceable heritage.

**Fig. 1:** Mill "Haxhi Zeka", Peja, photo Blerta Spahija.

## 6 Hydroelectric power plant as a museum

Industrial heritage of Kosovo includes different types of buildings, among which are also the hydropower buildings. "Prizrenasja" is hydropower building which is located in the city of Prizren, and was built in 1926-28 by contribution also of its citizens.

Project and construction of this facility at the time was carried out by an Austrian company. The architecture of the building was rich with modern elements of the time, the facility was also equipped with water turbines, canal, 160 KW power generator etc. Due to the great demand of electricity, eight years later the generator was activated second with the same capacity. Hydropower central has two floors, the ground floor in which are two rooms, at one room are located generators with accompanying equipment, and at the other room were equipment for monitoring the flow. A part of the building was covered with a flat roof, in which approach to it was through the engineer room. After the first renovation roof was covered with clay tiles. For the architecture of this building, architect was inspired from the castle that is near the building and also suits the environment. Different periods of political, economic and social history of Kosovo, contributed to most of the industrial buildings in the meantime to change their destination, as it happened with the building in question, which in 1979 was transformed into the Museum of Electricity in Kosovo. (Fig. 2).

**Fig. 2:** Hydroelectric power plant"Prizrenasja", Prizren, photo Safete Veliu.

During the conversion hydropower building was restored for the first time, the ground floor was converted into restaurant, first floor in the café, and in the yard were created space for the exposure of old equipment. Electricity Museum located in a historic building, is a unique example of Kosovo, for the treatment of industrial buildings as cultural heritage. The museum didn't work from 1980 until 2012, because of not maintaining it. In 2011 with the donation of the Embassy of the United States, the restoration project was developed by RCCH Prizren and Cultural Heritage without Borders (CHwB). Hydroelectric power plant building with its characteristic position, unique architecture of XX century, which has kept its original elements, takes special place in the history, sociality and architecture in Kosovo and the region.

## 7 Reuse of the textile factory

Gjakova is a town which has originated from the fifteenth century when it became a center of craft and trade known by the name Jakova. It was one of the most developed cities in economy before the war in Kosovo, a development which continued relatively until the 90's. Once the most industrialized city in the former Yugoslavia, with the highest employment per capita, in 39 socially owned enterprises (SOEs) have worked over 20 thousand workers in factories that have managed to export products abroad.

Most developed economy branches and the bearer of development were: Metal industry, textile industry, industry of construction materials, food industry, chemical industry and rubber, wood industry, Agro-industry, trade, etc. After the war the city's economy fell significantly. All factories and companies that had a rapid development, which developed to the extent that they were forced to import labor from abroad, had stagnated. This stagnation, in the economic development from recent decades, continues today. The facilities are abandoned and have undergone many changes in the structure. One of the largest factories and also the most important in Gjakova was the textile factory "Emin Duraku". During the time when the company has operated, it was known and respected enterprise, also being a major supplier for the textile in the regional market (former SFRY) and a world-renowned and important exporter in Italy, Poland, the former Soviet Union, and U.S.A. Since the war the factory was left partly destroyed, and was not functioning until 2015. It is the first factory reopened in Gjakova about 15 years after the war and it is an investment of Swedish company "Trox" and American Company, "Blue Stone Safety" who placed their production line. The factory now is called "Intertex" (Fig. 3).


**Fig. 3:** Photo of the restored textile factory " Intertex", photo Blerta Spahija.

The building was renovated before was opened in interior and exterior and tailored to the needs of the company. As for the types of production, this factory will produce moldings for cars of Audi, Volvo, Porsche, VW also in this plant will be produced body armor for the US Army, and other military clothing. The return of this factory has great importance for the city to its citizens at the same time.

As another example of industrial heritage also worth mentioning is Gjakova's Old Bazaar (Fig

4). It is the oldest bazaar in Kosovo (also known as the Grand Bazaar). It is one of the major attractions at the site. The Old Bazaar, was the heart of the economy in Gjakova, a city of trade and merchandise which served to the villages around the municipality of Gjakova. The Old Bazaar was burnt and destroyed and then it was reconstructed after suffering damage during the 1999 war (the last War in Kosovo). The Bazaar is easily linked with the city center. In total the Bazaar reaches the surface of about 35000 $m^2$ and the length of the main road is 1km long, with about 500 shops situated in the sidelong. It is, however, still home to an active mosque, and a clock tower[5]. Shops that were situated in this Bazaar contained commercial and artisanal shops, where producers were its own citizens. Old Bazaar during the last war, was completely destroyed. Its renovation was after the war and it returned to the previous condition. Today it is a landmark of the city and it is reused as a public space for the citizens. There are a lot of shops, coffees, restaurants and it became a very attractive part of the town.

**Fig. 4:** The Old Bazaar, Gjakova, photo Safete Veliu.

## 8 Conclusion

After all the mentioned examples above, and many other buildings of industrial heritage, Kosovo remains one of the most endangered country in terms of heritage in the Balkans. Industrial heritage is very important factor in the economic development of a country, therefore, should prevent the constant destruction of its. One of the most important steps in the preservation of this heritage, is identification of these buildings, inserting them into the framework of the cultural heritage. This is achieved by changing the law for these kinds of heritage. The malfunction of some of these buildings has derived as a result of various problems that have characterized heritage during recent decades. Some of these problems are the dire state of the buildings, which were destroyed during the last war, the lack of investors, and the lack of preparation of strategic plans for this type of heritage. We conclude that, industrial potential of our country is quite large and requires immediate investment, which will preserve the value of monuments and also would influence the economic, social and architectural development.

5 Riinvest-Economic Activities and Kosovo's democratic development.

Irornworks Jesenice. Photo: Sonja Ifko.

Sonja Ifko, Jelka Pirkovič

# Conclusions of the 2nd International Symposium on Cultural Heritage and Legal Issues

## I. Background

The Council of Europe has been addressing issues related to industrial heritage since in its 1985 Granada Convention for the Protection of the Architectural Heritage of Europe and its 1992 Valletta Convention on the Protection of the Archaeological Heritage. Industrial heritage sites constitute an important element of European urban and rural landscapes as defined by the Florence European Landscape Convention 2000. They are one of the building blocks of European contemporary identity and as such a part and parcel of common heritage of Europe as defined by the Faro Framework Convention of the Council of Europe on the Value of Cultural Heritage for Society 2005.

At the same time, industrial heritage in its tangible and intangible aspects has been in many parts of our continent, due to the new "developmental challenges" of restructuring the economy, under threat and could be lost forever at even greater extend regardless of its intrinsic and social values and development potential. International organisations, such as TICCIH in the first place, have dedicated much of their concerns and activities towards raising awareness of decision-makers and general public about the importance of industrial heritage for our societies and about the risks this heritage has been exposed to. The main TICCIH document in this vein is the 2003 Nizhny Tagil Charter. Some of the visible results of ICOMOS and TICCIH joint endeavours was the International Day of Monuments and Sites in 2006 dedicated to industrial heritage, and above all, the adoption of a joint policy document, the so called Dublin Principles (Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes) in 2011. Recently, also the European Union raised voice in favour of European industrial heritage as one of the main catalyst of creativity and growth, especially stressing its economic potential for the development of cultural tourism and related economic activities. In this regards, the Communication from the Commission "Towards an integrated approach to cultural heritage for Europe" (COM (2014) 477 final), and the Council Conclusions on cultural and creative crossovers to stimulate innovation, economic sustainability and social inclusion (2015/C 172/04) can be mentioned. 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 expertise towards international cooperation and pooling forces in the field of industrial heritage protection. Joining forces with the Council of Europe builds 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.

II. Issues of concern

Discussions in the symposium raised the following issues of concern:

1. Industrial heritage encompasses the following aspects: industrial and adjacent structures and sites together with machinery, movable and immovable fixtures and fittings, archaeological remains of industrial activities, museum and archival collections, industrial urban and rural landscapes, and intangible heritage in the form of technical skills, expertise and know-how in technologies and processes, traditions and collective memory of heritage communities associated with industrial heritage. This palimpsest of different aspects and values contribute to the complexity of challenges connected with heritage protection and management. On the other side, industrial heritage properties are flexible and therefore suitable for variety of new uses, including mixed-use schemes, small businesses and creative industries. Other uses including community, museum and gallery uses may be contemplated, in some cases commercial office and residential use may be considered. A minimalist approach to change will help to respect the original structure and retain the industrial character;
2. There are evident lacunae in documenting, understanding, listing and protecting these assets, especially in the Central and South-Eastern European and neighbouring countries. In addition, the documentation, knowledge and competences related to industrial heritage are often fragmented, different institutions do not exchange information and collaborate on a regular basis. Open access to information and interdisciplinary approach need to be enhanced;
3. Economic and political circumstances 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;
4. Loss of intangible dimensions of industrial heritage, evidence of technology and production process, everyday social life of workers;
5. 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 nature of changes affecting industrial heritage and its role in society require new responses and innovative solutions. Responses to these issues emerged during the discussions and include among others the following considerations:

6. Cooperation between the Ministries responsible for cultural heritage (and associated heritage institutions) and other Ministries, in the first place the Ministry responsible for economic development and tourism, should be strengthened with the view to develop pilot projects for industrial heritage rehabilitation and promotion;
7. New governance models should be encouraged and put in practice where the expression of public interest and direct participation of industrial heritage communities and other interested stakeholders complement the decision-making processes;
8. When protected but no longer in use, the industrial heritage should be regarded as an asset with potential for beneficial use through constructive conservation and rehabilitation for reuse or development where a commercially viable solution can be found, or as an industrial archaeological asset with potential for museum use or as a working museum, including with tourism potential;
9. Relevant industrial heritage sites should be safeguarded from destruction with the help of pro-active policy of regeneration. Such policy should stimulate feasible (acceptable) and financially interesting new types of interventions. Most successful schemes for industrial sites require a “vision”, to see how the risks of a reuse scheme can be overcome, and entrepreneurial activity, to take on the risk. There must be sufficient capacity in the acting organisation to undertake necessary works. The potential high costs of conversion, and sometimes decontamination, should not be under-estimated;
10. Existing legal standards should be revisited in the light of necessary improvements

tailored to the needs and specificities of industrial heritage – for example, procedures should be put in place for responding quickly to the closure of important industrial complexes to prevent the removal or destruction of significant documentation and heritage features. Legislative provisions should be provided to allow reasonable access to industrial sites for recording purposes by relevant officials and investors should be obliged to provide records of significant features as a part of development consent procedure. The competent authorities should have statutory powers to intervene when necessary to protect important assets at risk.

III. Issues for further consideration

Amongst issues discussed during the symposium that require further consideration, the following challenges, values and priorities regarding industrial heritage have been identified with the view of following these issues up in future industrial heritage activities:

1) Industrial heritage conveys the full range of values from social, identity, creative and educational to economic and scientific ones. These values are integral part of common heritage of Europe being important for communities as a factor for identifying with place. It should be regarded as a category of heritage worthy of protection in its own right and of equal importance to other types of heritage categories. Protection should be more than its simple legal protection, by reflecting the importance of management of this heritage, particularly where it is in danger or threatened;
2) Heritage professionals and civil society interested in industrial heritage should take stock of lessons learned through different projects and pending issues in order to determine what could help resolving key issues. The possible solutions are the following:
- Develop a framework of a specific data base to be hosted as part of the Council of Europe's HEREIN System, as well as tools to facilitate the collection of information. The aims of this framework could be to introduce industrial heritage and its subsets as specific categories in heritage recording and selection. At the same time recording and selection procedures should promote public participation;
- Prepare a publication taking into account major common references and identifying main issues at stake related to the industrial heritage in Europe;
- Organize educational programs, preparing the workshops for children, students, and stakeholders;
- Take the opportunity to contribute to the drawing up of the Pan-European Heritage Strategy 21 on the topic related to industrial heritage.

When drawing up Pan European Cultural Heritage Strategy 21 the following issues should be considered:

a) Who formulates the key challenges, values and priorities regarding industrial heritage in Europe and for whom?
b) Which priorities are relevant at European and national levels, for example those aimed at awareness raising and increasing connectivity and participation of individuals and heritage communities related to industrial heritage?
c) Which tools are most needed and adapted to the industrial heritage needs? Some of the tools could be the following:
- Compilation of views related to the social and economic values of industrial heritage and alternative attitudes and interventions meeting the needs of industrial heritage at on hand and responding to the public and private investors' expectations on the other thus enabling adaptive re-use of heritage resources;
- National authorities responsible for cultural heritage should provide guidance for safeguarding the buildings and sites to owners of industrial heritage assets, including concerning the safeguarding of sites from damage or encouraging temporary uses or partial occupation, which may help to maintain the condition of the site.
- National authorities responsible for cultural heritage should provide guidance and advice to owners and investors/developers about how to proceed with reuse schemes including:

- The importance of recording important features (including the provision of suitable archiving facilities to safeguard the records for future reference);
- Identifying how spaces may be reused and their flexibility to accommodate change;
- Discussing with relevant officials about how to proceed with a rehabilitation scheme, including safeguarding as much as possible of the fabric, fixtures and fittings, in order to maintain the authenticity of the heritage, but also considering the option of reversibility;
- Relevant European institutions should provide manuals identifying good practice in industrial heritage rehabilitation projects, for meeting investors' and community needs, for fostering intergenerational relationships … to enhance the re-use of heritage resources in respectful, creative and innovative ways and to contribute to the regeneration of urban and rural (brownfield) areas;
- Relevant European institutions should prepare compendium of economic and alternative financial models suitable for industrial heritage regeneration, tourism and other heritage related business and services taking into account territorial dispersion, industrial heritage character with the aim to benefit local communities, to encourage the re-use of heritage and to create jobs;
- Official policies should be adopted for endangered heritage to enable the recording of sites that are at risk through vacancy, disrepair, vandalism, climate, pollution and redevelopment proposals, including awareness-raising initiatives to identify that heritage assets provide an opportunity for investment and rehabilitation to owners, potential buyers and developers (including the possibility of advertising buildings and sites which are in need of new owners/uses/rehabilitation);
- Enabling development (new development on the industrial site can help to pay for the restoration and rehabilitation costs of the industrial site), but both activities should be suitably coordinated through official consent or agreement systems, especially to ensure that sufficient funds are derived from the profit from the new development, set aside, and specifically directed to restoration and rehabilitation works to the industrial asset.
- The location in which the industrial site is situated may an important factor in any rehabilitation scheme as the prevailing economic conditions may determine the viability of a project. There must be potential for sustainable development of the area. Run-down areas or those in decline may mean that market conditions are too weak to reuse the heritage at the present time (but the need for safeguarding or temporary uses should be reiterated in such circumstances). Image is also an important factor in that there may not be sufficient market appeal (in the site and the area where the site is located) for a commercial solution.
- Funding assistance may also be required, not just for assisting restoration and rehabilitation works in industrial sites, but also to create an "enabling environment" -through urban renewal and regeneration of industrial areas and towns. Many former industrial areas, including docks, ports and groups of buildings used for manufacturing and the transportation of goods have been successfully regenerated in some parts of Europe. To encourage such action legislation may be required to create possibilities for suitable project organisations and initiatives for regeneration. Moreover, a change in the wider area may be required before industrial sites become viable, including infrastructure renewal by public authorities.
- Council of Europe should widen the scope of the technical co-operation and consultancy missions enabling further on-site experimentations on industrial heritage-led local development;
- The scope of the European Routes networks dedicated to industrial heritage should also be broadened for better management of such properties in underrepresented European countries;
- EU institutions should enhance Twinning Programmes between partners facing similar challenges related to industrial heritage in EU and neighbouring countries;
- Industrial heritage issues should to be integrated into heritage study modules offered at European universities and enable students from countries where heritage studies are not part of university programme to attend such modules elsewhere;
- Programmes for exchange of experts and expertise, apprentices, researchers, students and volunteers (active in management of industrial sites and museums for example) should be expand and developed.

Ironworks Jesenice,
excursion of the 2nd International Symposium on Cultural Heritage and Legal Issues. Photo: Sonja Ifko.

ICOMOS Slovenija

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.

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