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Planning of Public Open Spaces in Post-industrial Areas. Urban Revitalisation in Covilha (P), Zurich (CH), and Berlin (D)

In Western Europe the long-time process of urban revitalisation of inner-city brownfields is strictly connected with planning of public open spaces. This kind of policy appears as a basic key for achieving optimal results of rehabilitation (revitalisation) of industrial wastelands. In the article presented are the three case studies: In Covilha/Portugal, Zurich/Switzerland, and in Berlin/Germany. The aim of the research is to show the meaning of the space between former factories and in some cases inside of these buildings. There, the theoretical and in situ analysis were conducted since 2003 till present time in connection with the three universities: University of Beira Interior in Covilha, Portugal, Swiss Federal Institute of Technology in Zurich, Switzerland, and Technical University of Berlin in Berlin, Germany. The new scientific aspect is here the opening of the formerly closed industrial spaces as well as using these spaces for public functions. The paper is resulting in a few statements about significant features of urban revitalisation, wherein creating of open public spaces possesses the leading role.

1. Introduction - similarities

The three researched post-industrial areas, UBI Area in Covilha, Untere Hard in Zurich, and Osthafen Behala in Berlin are similar according to their main features:

- The first original function of the area and buildings was industrial
- this industrial activity began in the 18th (Covilha), 19th (Zurich), and 20th (Berlin) centuries and ended in the 20th century
- the sites were functionally and spatially transformed between 1980 and 2000
- the three investigated cases are examples of the ongoing European rehabilitation process of industrial areas. The researched sites, after their degradation and abandonment, once again have significant spatial and functional roles in their cities and are open to the public
- these sites have been revitalized and are still being improved functionally and spatially
- in choosing a site, the relationship between existing original elements and those that were introduced at a later time was considered

- in each of the three case studies the functional and spatial pattern of an industrial complex is recognizable
- the history of the areas consists of three time periods (industry, post-industrial degradation, and post-industrial rehabilitation)
- the research areas contained factory buildings and have neither housing nor public service objects, etc.
- the complexes consist of specific industrial structural elements (factories, smokestacks, industrial facilities and machinery, open storage areas, etc.)
- some parts of both the former factories and new buildings on the sites are now open to the public.

2. The in situ identification of the spatial industrial values in the UBI Area

In the recent image of Covilha the UBI Area is a representative case. It is a well-known urban space used most frequently by students and other visitors connected with the university. The process of rehabilitation has made the abandoned and destroyed wasteland a landmark in the city which functions appropriately and is still undergoing spatial transformation. Since 1975 the old textile factories in the present UBI Area have been re-used for the needs of the university. During construction archaeological relics of the textile mill were discovered. The vats of the former dye-house, officially called 'furnace and cylindrical vat works' were classified as part of the nation's cultural heritage in 1982 [3], [4]. Since then the process of rehabilitation of the former wool industry in the Ribeira da Goldra district has won special attention. Moreover, it was also the result of a new approach to the treatment of industrial heritage in Portugal at that time. It considered new ways of researching, conserving, and showing the heritage of architecture used in the past for industrial production [2]. It should therefore be mentioned that the so-called process of post-industrial rehabilitation, which maintains important heritage sites and considers the listing of industrial buildings, began in Covilha in the 1980s. The spatial restoration and re-use of the Royal Cloth Factory marked the beginning of post-industrial revitalisation on a scale of the city of Covilha. The process was directed by the University of Beira Interior, which gained official education rights in 1986. At present, the UBI Area is active as a science complex transformed from a neglected industrial site. Most of the buildings are used by diverse university faculties, which is a strong functional contrast with the past, although the original industry of wool production still exists in some buildings directly adjacent to the UBI Area. Additionally, the industrial space has been changed from an urban planning point of view. The district, which was previously functionally and spatially closed, is gradually being opened for public use. The area is spatially and functionally rehabilitated. The physical opening of the industrial site for public users has played a crucial role. The open space now comprises 62.40 percent of the site's total area, has a representative central function, and is frequently used by the students and inhabitants [5]. The surrounding factories now serve as woollen industry museums. The other buildings have been adapted by the UBI University for scientific functions – the Physics and Informatics faculties, which are architecturally connected with the new Faculty of Mathematics.

2.1 The flow of public space in UBI Area

There are four categories of treating the industrial relics: Conservation, demolishing, isolation, and weaving [1]

In the case of Covilha, the fourth category (weaving) is mainly evident [5]. Namely, the flow of space on the site itself as well as through the buildings weaves the space of the UBI Area together with the space of the surrounding Ribeira da Goldra district. The original architecture is re-used for scientific functions and partially combined with new buildings. It links the site with more modern parts of the surroundings, which is a visual aspect. The traditional urban fabric still seems to be similar to the historical urban fabric. The new bridges across the Ribeira da Goldra River connect the two riverbanks near the unofficial main central area. The main roads and paths are integrated with the city's traffic. In the cityscape the line of re-used factories is harmonious because it matches older neighbouring housing as well as the line of the mountains. In the case of the research site in Covilha, the creation of a network of open spaces embracing the site and the surrounding district is clearly evident. The rehabilitation process transformed some of the former woollen factories and most of the open space into public use areas. The hilly topography of the land was taken advantage of in creating various pedestrian crossings, for example as small local bridges, stairs, and corridors raised above street level. Public activity consists of pedestrian traffic. Unlimited public access is one of the aims of the rehabilitation process, which strengthens the urban importance of the research sites. It is conditioned by their location, size, shape, unlimited opening time, constant re-building, and upgrading processes. In the UBI Area the centrally located public space permits the observation of many re-used factories. This is a multilevel image influenced by the hilly site, whereby the original form of the buildings has been preserved to a great degree.

The first category (conservation) may refer to some of the buildings renovated in the traditional style. Most of the former factories have indeed maintained their original architectural form. Additionally, two former factories now function as museums showing the history of wool production and of life in the area (Museu de Lanifícios and Arquivo Histórico de Museu de Lanifícios).

The second category (demolition) refers to the architecture (factories and additional buildings cooperating with factories) demolished at the beginning of the rehabilitation process.

Some traces of the third category (isolation) are the result of new buildings created on the site which now hide the traditional architecture behind them.



Fig. 1 Part of the public open space between the re-used formerly industrial buildings. In the background: The old factory serving today as the Museum of Wool Manufactory (Museo de Lanificios) in the UBI Area in Covilha (Portugal). Photo: The author



Fig. 2 The public space inside the former wool factory – today: University of Beira Interior in Covilha, Faculty of Civil Engineering and Architecture. The pedestrians can walk through the building as an alternative footpath. Photo: The author

3. In situ identification of the spatial post-industrial values at the Untere Hard

In situ research permitted the identification of the area's spatial industrial values and its treatment during the revitalisation process.

As of 2000 the Untere Hard contained the open space at the Turbinenplatz, which was next to the transformed metalworks Puls 5 and the new Schiffbau (former shipbuilding) structures. This new open space was regained from the original industrial open space, although it was enlarged by the demolishing of many factories in the 1990s. Summing up the in situ information, it is possible to say that the revitalisation at the Untere Hard is being gradually realised. On the one hand, little spatial changes in the area can be observed. On the other hand, the constant functional improvements of the structure within the last years (2003-2011) are distinct, when the open space was enlarged and aesthetically improved. Between 1997 and 2001, however, the spatial intervention involved an intensive demolition of part of the industrial facilities and buildings, leaving monuments and other industrially active architecture in place. A comparison of the original densely built industrial structure in 1950 with the spatially re-used loose structure in 2006 shows that less than half (49.10 percent) of the original built substance still exists [5].

To conclude, the present image (since 2003 till today) of the Untere Hard is significantly different from the original industrial one due to the changed density of the urban fabric and the new architectural style of the modern buildings.

Moreover, the historical plan shows a specific complex composition, not only of the original industrial factories and other facilities, but also the relationships of the open squares, streets, and lanes, all belonging to one functionally individual unit of the Untere Hard. The specific industrial composition of these elements has been totally changed since the middle of the 1990s. Instead of regaining and improving the original industrial-spatial conditions of the area for the creation of the industrial cityscape, the rehabilitation process led to the demolition of industrial buildings. The industrial structure of the Untere Hard, which in the past was composed of over twenty six objects, is now represented by two listed buildings.

3.1 The flow of public space in Untere Hard

In the general plan of the Untere Hard the fourth category (weaving) predominates [5]. Typical for this is the integration of the historical shipyard and the foundry with new architecture in a way which still allows for the possibility of viewing the original parts of the buildings. The open space flows through these former factories and weaves with public open space outside of them and with the central Turbinenplatz as well as with the remaining network of open spaces in the form of paths, squares, and lanes. The industrial area is presently connected to the nearest neighbourhood via the new Amperesteg bridge, which crosses the Limmat River. This linkage to the river, which is no longer used for industrial purposes, strengthens connections with the city centre, as do roads and paths along the river. In the case of the Untere Hard, the creation of an open space network embracing the site and the industrial district should be stressed. The area surrounding the main square (Turbinenplatz) consists of upgraded former factories that previously belonged to the shipyard

and metalwork, and they also partially serve as open space. These and other public places on the site possess in each case a diversified spatial character. Various recreational activities are possible (walking, cycling, roller skating, skateboarding, sitting, etc.). The central shape of the shipyard zone weaves the different views of the historical neighbourhood together. From the Turbinenplatz, looking into the narrow spaces around it, it is possible to see the industrial surroundings related to the past industry together with the new buildings.

The first category (conservation) can be seen to some extent in the listing of the water reservoir on the smokestack and the shipyard.

The second category (demolition) reflects the solutions applied on the site as well, because much of the area was cleared of its old industrial buildings.

Furthermore, the third category (isolation) refers to the modern architecture which was built on and around the Untere Hard and presently blocks views of the existing former factories.



Fig.3 Part of the public open space at the Turbinenplatz in the Untere Hard area in Zurich, Switzerland. In the background: The former foundry Giessereihalle transformed into Puls 5, with parts of public space inside. Photos: The author



Fig. 4 The alternative footpath combined with an exhibition for pedestrians crossing the former shipbuilding – today cinema, theatre and restaurant area at the Untere Hard in Zurich. Public open space inside the old factory is constantly visited by the inhabitants and tourists. Photo: The author

4. In situ identification of the spatial post-industrial values in Osthafen Behala

The character of the open industrial spaces at the Osthafen Behala site is diversified.

The re-used northwestern part mostly exists as a footpath and service zone as well as a viewing point. The southeastern part of the area is being upgraded to an office and commercial space accompanied by an open space. Each of these places has its own character due to the local visual aspects of the viewing point and of the local neighbourhood.

In situ research permitted the identification of spatial industrial values in the area as well as its treatment during the adaptive re-use and re-integration process.

Until 2006 an unofficial open space existed at the Osthafen Behala between the Spree Speicher granary and the MTV Gebäude. Since 2007 till today this space has been reduced because a new administration building cooperating with the MTV Gebäude was constructed.

Summing up the in situ information, fast structural changes have been observed within the last three years. The rehabilitation process in the harbour area has, however, been realised gradually. Since 2007 (till today) the spatial intervention has been strengthened and most of the industrial facilities and equipment have been eliminated, leaving only the listed buildings. In the case of the Osthafen Behala, in 2005 the upgrading process resulted in a complex structure which functions as a spatially and functionally varied city zone with a significant history. From the 1990s until 2005 original (operating) industry could be found side by side with run-down industrial areas and spaces that had already been revitalized. The longitudinal

shape of the harbour along with the new physical openness for public visitors has permitted various view possibilities. Nevertheless, new open space and industrial cityscapes of the area which came into being during the period of post-industrial degradation (due to the gradual retreat of industry) – have been eliminated since 2006 till present time.

4.1 Flow of public space at Osthafen Behala harbour

Finally, concerning the Osthafen Behala in Berlin, the fourth category (weaving), is especially evident with regards to the integration of the historical granary houses with elements of the new architecture such as windows, terraces, and other technical improvements [5]. New buildings are planned as well. The site's open space is weaved together with the surrounding pedestrian paths. The site is therewith functionally embedded in the district. The buildings are generally used for commercial purposes while the open areas are mostly public space. Two historical bridges (Oberbaumbrücke and Elsenbrücke) still connect the harbour with the surrounding neighbourhood. The roads and paths are a physical connection with the city centre, as is the Spree River.

The creation of an open space network embracing the sites and their surrounding district is evident as well.

In the case of Berlin, plans for the spatial transformation of the Spree River Area consider the Osthafen Behala site as public open space. Most of the listed and dimensionally diverse granaries have already been transformed. In spite of being representative structures, however, the buildings do not offer any interior open space (contrary to Zurich), since they are devoted only to commercial entertainment, service, and office functions.

Across the river from the Osthafen Behala there are many transformed and abandoned industrial factories that still have their original historical façades. These buildings are now setting new visual standards for the surroundings, which is visible from the harbour zone.

The linear shape of the site provides this distinctive historical view, weaving it with the historical view of the harbour zone. The harbour site also seems to exhibit the first category (conservation) of transformation as well. Most of the former granary buildings are now listed, which means that the new buildings can only be weaved into the existing fabric in a limited way. The second category (demolition) of the attitude towards the historical remains is connected to WW II, when one of the granaries was destroyed. The original cranes and petrol devices have also recently been removed. The third category (isolation) is also found at the Osthafen Behala as well, as plans for the Media Spree in the Spree River Area will hide the researched harbour site behind tall buildings. New architecture on the site also blocks visibility of the existing factories in the cityscape.



Fig. 5 The wide open space of the Spree River along the Osthafen Behala in Berlin, Germany. This space allows to observe the public open space in-between the old industrial- and new buildings in the harbour area. Photo: The author



Fig. 6 The public open space on the Osthafen Behala harbour site in Berlin. To see are the relics of the industrial epoche, in the background: Old granary re-used today for a cloth shop, traces of railways in the foreground. The new element: The public terrace on the right. Photo: The author.

5. Conclusions

The planning of open public space in the post-industrial areas during the urban revitalisation shall consider the following suggestions:

- Ensuring the “flow” of open space on the area and perhaps through the buildings as well
- keeping the possible parts of the urban pattern of industrial heritage as one layer
- a constant observation of the space and the on-going functional and spatial improvement of the area based on this observation
- integrating the area in a city’s open space system
- creating access to the open space and its environs according to their spatial and functional significance
- the representativeness of the industrial heritage, which can be achieved by:
 - Creating open space in the industrial structure
 - maintaining and regaining open space around the industrial structures which are listed (e.g. in front of former factories)

In conclusion, the urban revitalization introduces remarkable aspects and other features of this process.

On the one hand, the retreat of the industrial functions and possibility of rehabilitation creates a chance to open up previously inaccessible sites to the public. Simultaneously, it opens “new” cityscape views for visitors that may be observed in this form only from the industrial site. These views are a result of the architectural protection of the industrial structures and of the open space along footpaths. The industrial urban connections create visual lines, for example, the open spaces of rivers, railways, paths, and roads.

On the other hand, in the case studies the priority of modernity should be observed, creating an esthetically new space and new cityscape that overshadow the aspect of the historical elements. Placing a priority on modernity means a change of relationships between old and new elements. The new quality of the open space, new functions, new buildings, integration with the city centre and surroundings, as well as the way rivers are treated all influence the visual changes of industrial areas.

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