

# Growing Environment Culture through Urban Design Processes

## 城市设计促进环境文化

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**ABSTRACT** The paper focuses on industrial heritage and conservation concerns in the context of urban development. Through the comparison between three European industrial heritage sites will be introduced diverse transformation strategies. First, soft approach of IBA Emscher Park in Ruhr region, Germany, that focuses on the ecological sensitivity of the design approach. Second, temporary use strategies in creating post-industrial identity in the case of Sulzer-Areal Site in Winterthur, Switzerland. The last, adaptive reuse through a bottom-up urban policy in NDSM shipyard hall, Amsterdam. These three case studies will be evaluated through environmental, social and identity issues.

**KEY WORDS** Environment; Industrial Regeneration; Industrial Heritage; Ecological Transformation; Adaptive Reuse

**摘要** 过去 30 年里, 欧洲的工业生产体系逐步从高度集中于工业区的福特主义向分散制造的后福特主义转变。随着这种转型, 西方国家城市普遍出现旧工业区。这些地方依然有着潜在的经济价值, 但荒废弃置阻碍了这些价值的发挥。为释放其经济价值, 迫切需要以保护和循环利用的策略来取代拆迁和重建。自 20 世纪 70 年代以来, 工业遗产地的实验性更新策略已成为设计实践的保留节目。

文章通过对德国鲁尔河谷埃姆歇公园、荷兰阿姆斯特丹废弃旧港区 NDSM 码头和 Sulzerareal——一座位于瑞士 Winterthur 的旧钢铁联合企业——3 个案例的批判性对比, 提出讨论“自适应再利用”方法。这些设计通过实验性的新替代策略实现工业区的更新, 尽量减少必须的干预和激活长周期过程, 与完全修复相比, 这显得更有效率也更经济。这个过程通常始于大片场地中一小块剩余场地的物质性修复, 从而引发周围环境和城市关系的改进。这种方法通常提高地区的可达性, 增加其孔隙度和均质性, 避免产生与毗邻用地没有联系的社会隔离的飞地。这也可能激活与该地区有影响力的正式或非正式社会组织协商的进程, 实践以人为本的治理和问责。这一转型进程吸引或排斥哪些人, 他们的水平如何, 将决定新的市民中心能否巩固, 也关乎后工业时代的身份认同。

除了物质空间影响之外, 对这些转型的分析突出了该进程对社会融合、生态和文化意识的提升的影响, 这些都是环境转型中的关键问题。

**关键词** 环境; 工业区再生; 工业遗产; 生态化改造; 自适应再利用

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## 1 The soft approach of IBA Emscher Park

Emscher Park is the recovery of an industrial area among the most degraded sites in Europe. In a post-industrial economic decline, the Ruhr region has found a new solution on shrinking becoming an icon of urban, economic, social and environmental change (Brown, 2001).

In the 1950's and 1960's, the industries of the Ruhr Valley have held an important role in German economic development. The gradual loss of competitiveness has led to an inevitable abandonment of sites in the 1970's, with a consequent increase of the unemployment rate (LaBelle, 2001). In 1989, a partnership between the state of North Rhine-Westphalia, local municipalities and private companies promoted the IBA Emscher Park: an ambitious renewal program of an area of 115 square miles along the Emscher River. In ten years (1989–1999) IBA sponsored approximately one hundred projects that satisfy the criteria of architectural quality, public accessibility, energy and environmental conservation, social cooperation, self-organization and low maintenance costs (Kunzmann, 2004).

The IBA Initiative started with an ecological transformation of the territory through the re-naturalization of the river Emscher, the redevelopment of derelict industrial land and the reconstruction of the natural habitat. The ecological sensitivity of the design approach is exemplified by the Docklands Duisberg: a new urban waterfront that incorporates different activities and brings back the water within the city.

In the process of regeneration, the IBA also intends to preserve the industrial heritage, to enhance the value of local settlement systems and promote the cultural industries within the park to create new jobs (Arbeiten im Park). The monumental industrial structures, guardians of the memory of the work of the past, now have a new meaning thanks to

the creative reuse of their spaces. A flagship example of adaptive reconversion is Landschaftspark Duisburg–Nord. It occupies the site of the former Thyssen steelworks in Duisburg–Meiderich that was shut down in 1985 (Figure 1). The designers Latz + Partners won the competition organized by IBA Emscher Park to transform the site into an industrial park of over 500 hectares. On the basis of in-depth analysis of the site, the project involves the conservation and reuse of most of the existing industrial structures. Through sensitive operations, a program with new uses has been introduced progressively in the area: a former furnace hosts an outdoor theater for concerts and shows, a gas tank has become a training camp for divers, a coal storage bunker is now used by the local mountaineering club. Other industrial spaces host performances characterized by international music (Figure 2), a small experimental theater and a hard rock disco. The multicolored night lighting emphasizes the monumentality of the structures and it defines new landmarks within the landscape. The park is managed by a small partnership between the state, the local government and various local NGOs, and it has become an important tourist attraction for the region.

The experience of IBA Initiative represents a laboratory of ideas and approaches for the regeneration of brownfields. The long-term process of renewal adopts an experimental strategy of multi-purposed development and it is an example of top-down planning that crosses bottom-up initiatives.

Therefore, the approach is radical in the idea of sustainable and cultural development, in the selection and realization of the projects. The innovative aspect consists in considering ecology as a linchpin of the regeneration of the regional economy and in wanting to transform the brownfields in an infrastructure of open spaces and creative activities.

Figure 1: Thyssen Steelworks manufacturing plant in the 1950s  
Figure 2: Landschaftspark



The conservation of the industrial heritage is encouraged through temporary uses ( Figure3 ). Events and art exhibitions take place in forgotten places becoming an opportunity for the community to meet, and then it all is consolidated in the cultural centrality (museums, theaters, cultural associations...). As a final result, these marginal spaces are transformed into new civic places.

The transformation of the Ruhr is an example of the balance between the ecological, cultural and social sustainability and the promotion of the innovation. The ecological recovery of soils, the restoration and the reuse of industrial heritage show how cultural, design and industrial capacities can work together.

The IBA Initiative is also significant because it involves various actors and especially as it pays attention to initiatives of local communities. Through the use of marketing and the media (light installations events, music festivals, art shows) and an intense work of branding, the area now has a new competitive image, strengthening the identity of the territory.

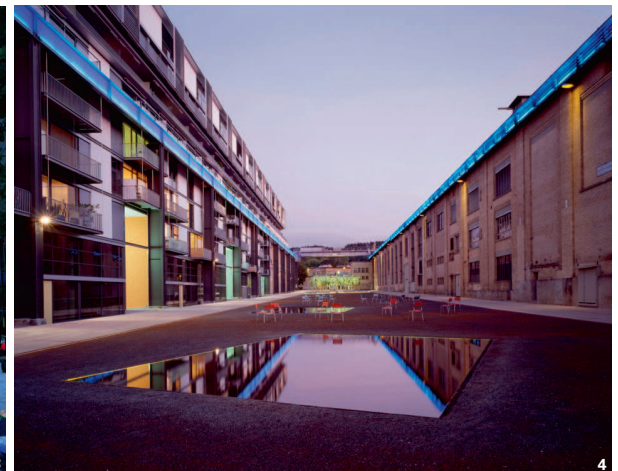
This case study proves how often these waiting sites need projects: soft operations with large-scale action are fundamental, rather than self-referential architecture.

## 2 Temporary use strategies in creating post-industrial identity: The case of Sulzer-Areal Site in Winterthur, Switzerland

Industrialization has always shaped sites and regions, and so does de-industrialization. Both processes involve structural transformations and conflicts between conservation and change (Oevermann, & Mieg, 2015). In the industrial heritage regeneration practice, temporary-use (Zwischennutzung) is a new model from Germany, Austria and Switzerland. When the developer's economic power is not enough to start the

regeneration process or the property ownership is not clear, the temporary uses are encouraged, which could breed out the most suitable long-term adaptive reuse (Dong, & Hou, 2012). Sulzer-Areal, as industrial heritage site has a tangible as well as an intangible dimension. The tangible dimension concerns the buildings, infrastructure, and technical equipment of a site; the intangible dimension concerns knowledge, practices, traditions, associations, and symbolic connotations. Furthermore, the intangible dimension includes the societal value given to the heritage site (Oevermann, & Mieg, 2015). Industrial success shapes the urban form and culture of Winterthur more than any other city in Switzerland. Historically, Winterthur is known as a hard-working industrial city ( Figure4 ). Due to the economic global crisis in the 1930s, many industries experienced a severe drop in sales, and subsequent layoffs (Oevermann, & Mieg, 2014). However, after the Second World War, which Switzerland had survived without any damage, the country experienced a golden point for its export industries. During these years, industrial sites were hidden from the public eye by its gates. While photographs carefully documented the industrial products, there was no debate about the beauty of industrial sheds. In the 1970s, major changes happened in the industrial sector, which changed the perception of urban space and cultural values (Bartschi, 2011). In the 1980s, contrary to the decline of the productive industries, financial services sector triggered a change in social values: "American" principles of quick money replaced engineering virtues, which caused price rising in city centers (Hofer, 1999). The old Sulzer-Areal industrial sector is right by the historic center of Winterthur and its central station. Since 1834, when the Sulzer brothers built it as a foundry, this factory complex has spread out as far as the Zurich railway line, forming an exceptionally dense

Figure 3: Landschaftspark  
Figure 4: The city of Winterthur,  
its railway network, and the  
Sulzer industrial sites



urban fabric, which occupies a surface area of over sixteen hectares. Even today its enormous industrial buildings and iron and steel production installations, with imposing bridge cranes on rails and gigantic diesel engines, remain intact and are an emblematic witness to the golden age of Swiss mechanical engineering (Bordas, 2006). From the 1980s, different solutions were proposed for its post-industrial future. In 1992, Sulzer invited eight international architecture offices to an architectural modification in the area of problematic existing buildings. Jean Nouvel and Emmanuel Catani won the competition from Paris, with a project called “Megalou” . Although, due to a delaying appeal by Switzerland’s traffic club against the high number of parking spaces granted by the Wintherthur administration in the 1996 planning consent, the project failed. After that, the Sulzer site was considered for temporary uses such as the following: the Architecture Department of the Zurich University of Applied Sciences (ZHAW) occupied Halle 180 since 1992, restaurants, studios, Company Offices, and recreational facilities. A rethinking of the strategy on the side of the property, which, in 2001, rejected the operation owing to the size of the investments, was required. Instead of intervening on the existing buildings, it was decided to turn them into public spaces, which had the twofold function of connecting the Sulzer–Areal sector with the rest of the city, while preserving its nature (Bordas, 2006). In the end the intervention focused on the far northeastern end of the complex, the one closest to the historic center of Winterthur and the station. Work was done on three free interstitial spaces that are clearly bounded by the presence of the industrial buildings around them. The most important part is Katharina Sulzer Platz, which connects the main road with the street that runs alongside the railway lines ( Figure 5 ) . At the northern end of the central strip there are three-square

pools with water that reflect the facades of the buildings. A number of chairs are scattered on the gravel ( Figure 6 ) . Indeed, on the south side of Katharina Sulzer Platz the original rails are still conserved and along them a large crane, which has been restored, can move as well as a new platform that can serve as the setting for various events. Another action point is the Pionierpark; a courtyard surrounded by the oldest constructions and built on an old coal mine. Lastly, a metal drainage channel has been embedded in the paving to mark the route to the square.

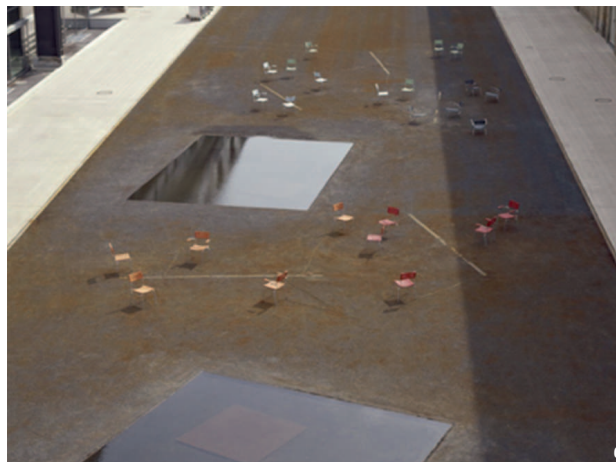
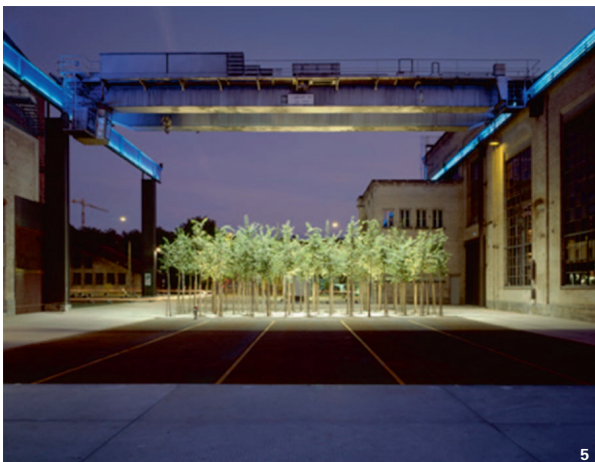
### 3 Amsterdam, NDSM shipyard hall, adaptive re-use through a bottom-up urban policy

In the late 1990 the city of Amsterdam underwent deep urban changes that contributed to the radical turn of the city’s urban policies. The northern bank of the Ij river was until the ’ 80s the inland harbor, and the ships construction industry site; as in the rest of Europe the sudden process of de-industrialization and industries dislocation (Arrighi, 1996) led to the abandonment of these areas turning them into derelict brownfields. In the meanwhile the city center ran into processes of gentrification and real estate investments pushing out of the city center the former inhabitants, squatters and informal creative groups. In the late ‘90s there were many re-development processes that involved the devalued real estate assets of the city, and various different strategies of intervention for re-enhancing their value while trying to attract investments and wealth.

Under the pressure of the citizens, squatters, and alternative cultural scene, that claimed low rent and a more active role in the renewal of dismantled zones in general, the Amsterdam municipality decided to propose an unusual planning strategy, consisting in co-opting in the valorization

Figure 5: Alongside the mobile platform there is another one, perforated at random by a series of round beds in which trees grow, forming a sculptural group

Figure 6: The central zone of the square is covered with pressed sand, square pools and a number of chairs, which recalls the rails of the cranes that crossed the space



processes non-institutional creative elements (i.e. those with the capacity to produce innovation) that until then had been relegated to the margins of the city. This strategy was adopted by the Amsterdam municipality to renew and boost the redevelopment of the northern IJ bank, choosing to reuse the existing building stock: this is the case of the NDSM, Nederlandse Droogdok en Scheepsbouw Maatschappij, docks area ( Figure7 ).

The NDSM docks were property of the city municipality and were part of a wider neighborhood redevelopment project. The Municipality starting from the re-use of a single part, The NDSM shipyard hall, promoted the valorization of a bigger area (2sqkm) in the northern bank. The aim was to produce, through a relatively low investment, a space centered on cultural activities that would bring that forgotten part of Amsterdam back into people's minds (Oswalt, 2013). This renewed popularity would "attract potential investors and renters and [...] allow a vibrant mixture of uses to develop" (Oswalt, 2013).

The process of reuse and redevelopment started when, in 1999, the municipality promoted a public ideas competition to support temporary uses in the NDSM shipyard hall. The competition was awarded to a group named Kinetisch Noord, a group coming from the former Amsterdam squatter scene; the building was entrusted for ten years. KN parceled the huge building to promote a multifunctional attitude toward artistic, cultural, leisure practices.

The building is a huge industrial shed (20.000sqm, 20 mt high), "generic" enough to be turned into a complex, flexible and jointed place. As in the Cedric Price utopias, the shed allows multipurpose use and a broad offer of commercial, creative and recreational services ( Figure8 ).

Kinetisch Noord in 2000 and started to re-invent that

space through the urban strategy named "Die stad als casco" (the city as a shell), the NDSM shipyard was the shell in which through open design workshops and the participation of designers, artists, activists and the civil society the whole city could take part in the renewal and regeneration of a city neighborhood. Inside the NDSM shipyard hall as concrete and iron shell, two were the main issues: one was the infrastructure, meaning water, electricity and heat supply, and the second was the partition of the shed into functional zones, small studio-boxes made out of containers with a DIY attitude, a skate park, a restaurant, actors studios and a theatre, an open space for a market (Inti, 2014).

The project could take place through the concurrence of three specific factors: the Broesplaatsfonds, a social security system to boost creative industries that sustained the people involved in the project, the availability of free/low budget space, and a support of 10 mln euros from the municipality.

The NDSM community, at first independently and maybe in opposition with the real estate market and investments produced what can be called a non-monetary value (Kiss, 2014), or better a symbolic value that in a short time generated positive externalities on the surrounding environment attracting new investments.

Metaphorically we could say that the NDSM regeneration process succeeded in producing an urban synecdoche (Augoyard, 1979), that is a part of a neighborhood becomes the symbol for the entire zone.

The NDSM shipyard hall was an abandoned space which embodied an economic potential energy (Fabian, 2012), that has been released through its productive and ecological renewal with a relatively low economic investment.

This is a case of a brownfield urban recycling, rescued

Figure 7: NDSM docks, 2014  
Figure 8: NDSM Shipyard hall, interior, 2015



from demolition and capable now of producing a low cost urban regeneration.

The production of innovations, micro-economies, creative milieu, subcultural communities and alternative lifestyles (Zukin, 1989) within the NDSM shipyard hall marks the turn of a space, that was literally an empty box, into a place with new urban relevance and significance ( Figure9 ) .

The NDSM shipyard hall produced such positive externalities that the surrounding plots of the neighborhood increased their land value and became a bargain for real estate investors.

#### 4 Conclusions

These three specific cases play a relevant role in the understanding of the renewed regeneration strategies for the European industrial heritage stock.

As we could see the issue is widespread all over Europe and elsewhere.

Nowadays, also due to the contemporary economic crisis, new strategies for the recycling and reuse are needed.

The three case studies show how challenging these adaptive reuse processes have been; their comparison highlights some common issues that are relevant for all those countries that own a devalued and abandoned post-industrial heritage stock.

One of the main issue is the evidence that when we talk about industrial heritage we are not talking just about the physical shape of the city, but instead the study of this item involves a lot of social and symbolical issues that must be taken into account.

To start with there are three main values to underline: a brownfield is portion of land that has temporarily lost its intrinsic significance but still preserves some historical and cultural values and some environmental values; thus a brownfield preserves a potential energy that can be released with the regeneration process that correctly enhances these values.

As we could observe the environmental issue was common to all three case studies, and for the Emscher site it was the trigger to start the regeneration of the site and to support the ecological awareness of the people. At the same time to preserve and enhance cultural and historical values it is fundamental to keep a social continuity, keeping low the conflict level and supporting integration. Moreover, as we could observe in the NDSM regeneration process, the



Fig 9: NDSM Events and installations, 2010

emerging of new social groups, subcultural communities is the mean through which a space acquires new significance both from a spatial and a social point of view.

This new significance is the first step toward the valorization, first symbolic and then economic, of the industrial heritage.

This shift from a sphere of meaning to another is reached progressively – see the long term program for the Sulzer Areal; it is achieved with the overlapping of temporary uses, flexible spaces, intensity of transformation, the empowerment of local communities, the management of a complexity of stakeholders and through participatory and inclusive processes. It is rarely the result of an architectural design, or a brief program, and generally seems not to suit the real estate investments time frame, but in the long run, as we could observe for all the three case studies, the positive externalities produced by this long time processes have a deeper impact on the economic valorization of the surrounding land. ■

#### Source of Figure

Figure 1 : source from ThyssenKrupp Konzernarchiv, Duisburg

Figure 2 : photo by Thomas Berns

Figure 3 : photo by Thomas Berns

Figure 4 : source from publication: Mieg, Harald A., & Oevermann, Heike. Industrial Heritage Sites in Transformation: Clash of Discourses. New York [M]. Routledge, 2014.

Figure 5 : source from website: Bordas, David B. Sulzerareal Winterthur (Switzerland), 2004. (2006)[2016-02-09], website: <http://www.publicspace.org/en/works/d214-sulzerareal>

Fig 6 : source from website: Vetschpartner. Landezine. (2010)[2016-02-09], website: <http://www.landezine.com/index.php/2010/12/the-sulzer-areal-by-vetschpartner-landscape-architecture/>

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Fig 8 : photo by Jip Bosch (Creative Commons)

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