



INDUSTRIAL URBAN LANDSCAPES. THE DISMISSED CANAL AREAS OF B5 IN THE NETHERLANDS AS CASE STUDY

MIEJSKIE KRAJOBRAZY PRZEMYSŁOWE. OBSZAR B5 KANAŁÓW W HOLANDII JAKO STUDIUM PRZYPADKU

Irene Curulli
Dr architect

TU/e Eindhoven University of Technology
Department of the Built Environment, The Netherlands

ABSTRACT

Industrial sites used to be located outside of the dense urban fabric. Nowadays, they are dismissed and the growth of the contemporary city has enclosed them in the old urban fabric. These sites have become 'available' places for perspective development.

In general, abandoned industrial areas are regarded as ordinary and valueless places, neglected places within the mental map of the city. On the contrary, they are extremely important reminders of our industrial past, significant layers of our history to be safeguarded and to work with for the development of the contemporary city. They are a challenge for designers, in that these have to unveil the peculiarities of the sites, to understand the unique features of the factories remnants and to provide an appropriate interpretation.

This paper focuses on the transformation of the industrial canal landscape circuit of B5 (BrabantStad) that connects five cities in The Netherlands. It will show the results of a research carried out for the first time on this subject. Along the canal circuit, dated 1800, are valuable industrial sites that risk the fragmentation and standardization, thus erasing local identity and memory. The former canal zone of Eindhoven will be presented as a case specific.

The research was developed at the Eindhoven University of Technology with the collaboration of local Municipalities, heritage institutions and the North-Brabant Province that funded the research. The investigation aimed at studying the stratified layers of the industrial canal areas and at proposing quality scenarios where the old and new can harmoniously coexist.

Key words: identity, dismissed industrial sites, memory, coexistence, historical layers.

1. THE LANDSCAPE OF INDUSTRY

Since the beginning of the 1970s many industrial areas in Europe have been closed and large productive areas have fallen into disuse. The de-industrialization and the consequent process of de-centralization, have made large urban areas available to new uses. As result, this phenomenon has drawn the attention to vast and forgotten dismissed industrial sites and initiated a debate on their potential in re-launching and acquiring strategic areas for future urban development. Beginning of the 1990s, plans of urban regeneration were proposed and were inspired by principles of sustainability, strategic vision, economical partnerships and heritage enhancement.

For many years these dismissed industrial sites were considered as 'ordinary' locations, valueless, and therefore they have been omitted from political agendas and excluded from all demands from society. But, slowly these former sites of production have become for many people symbolic areas, places of collective memory, thus qualifying them as 'heritage' of the industrial society to be rescued from demolition.

According to the definition of industrial heritage by The Nizhny Tagil Charter of 2003 [5], they are "the evidence of activities which had and continue to have profound historical consequences". In fact, the remains of dismissed industrial areas record historical and social events, technological and architectural experimentation, whose investigation would contribute to the understanding of our industrial past and present.

Needless to say that industrialization has altered the living environment in the area where it occurred, occupying large available spaces or exploiting the ground of its wealth. (e.g. metal and coal mines). Cartographic maps or photographs show the large-scale changes in the natural landscape but also how industry has influenced or shaped anew the urban fabric of districts and villages close to it.

According to Bergeron '(...). Within the limits of pre-existing cities, these forces (actors of industry, A/N) have swallowed all the still-vacant space which was suitable for their activities. Beyond these limits, they have more or less extensively colonized the nearest well-served suburbs, enforcing their control over the real estate with regard to future utilization of their productive locations.' [3]

As a result, industry has generated new landscapes and left a large heritage that is not easy to handle. In some cases, large and dense industrial districts have become landscapes of geographic dimension, as the Ruhr region. These landscapes do not only express the nature and physical dimension of industry, but they also record those technical, architectural and social values that are recognized all around the world. In fact, besides the spectacular buildings and infrastructures (canals, bridges, etc.) supporting productivity and distribution of industrial goods, these landscapes includes those pioneering engineers and architects that created these structure while experimenting with technology and science. Moreover, these inventions promoted the territorial expansions of nations; they established a worldwide network of communication and consequently influenced the relationships among human communities.

Briefly said, the recognizable remains of the industrial past do not only relate to place of production, trade and consumption, but they bound the tangible to the intangible. They are intelligible expressions of collective memory to safeguard and in need to be passed on to future generations.

However, the core matter is 'how' this heritage is reused so as to re-integrate it into daily life and city context. Moreover, 'how' to intervene in line with the centuries-old process of *layering*, allowing for the understanding of the heritage in terms of *evolved* cultural-industrial landscape.

This means that in the planning process it is essential to determine those design principles able to effectively appraise the cultural heritage. Only by doing so, it is possible to

generate sustainable urban changes that safeguard the past and, in the meantime become the starting point for great place-making.

It is without reason that historic environments and innovation should not operate together. This apparent contradiction should be seen as a challenge for qualitative urban development and it is exactly where preservation and design meet that can be generated a common language that is able to deliver fresh, sensitive and creative strategies for complex urban environments.

Focusing on the dismissed industrial canal zones of the Brabant region in The Netherlands, this paper will illustrate the results of a three-year research carried out at the Eindhoven University of Technology and funded by the North-Brabant Province. Public institutions collaborated on the research. This paper will firstly investigate the characteristics and complex layers of such heritage; secondly, the approach undertaken to unveil and take them to the next stage; finally, the paper will illustrate the results achieved through one specific canal, namely the canal zone of Eindhoven.

2. THE DISMISSED INDUSTRIAL CANAL ZONES OF B5: THE SITE AND ITS PROBLEMS

B5 is the metropolitan landscape formed by the five Dutch cities of Eindhoven, Helmond, 's Hertogenbosch, Tilburg and Breda located in the Brabant region, in the south of the country. [1] Former industrial canals intersect the five cities and physically connect them in a unique transport circuit (Fig.1).

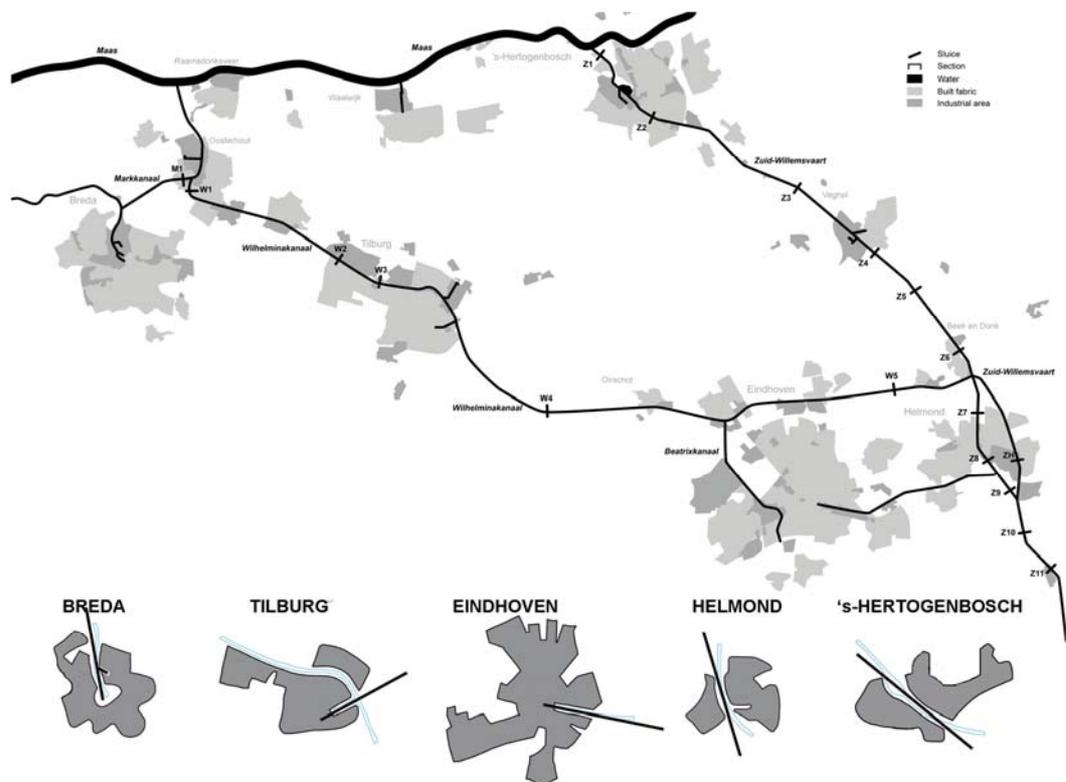


Fig. 1 – The outer and inner system of canals of the Industrial Canal Circuit of B5, North-Brabant, The Netherlands. Source: I. Curulli

In the past, Brabant was the leading industrial area of the country and the industrial activity was primarily related to textile manufactures and the production of peat; goods were transported out through the large net of canals present in the area. Their construction started at the beginning of 1800 and canals were efficiently used and implemented until the 1960s. At the end of this period, the decline of the area started.

From the urban and architectural point of view, the canal circuit can be considered as formed by two systems of canals: an outer and an inner one. The first one connects the five cities and crosses unique man-made landscapes; the second one consists of discharged cul-de-sac canals, with alongside sober but notable buildings on a different scale and architectural styles. Some of these industrial buildings are listed monuments (Fig. 2). These canals were originally located at the edge of the historical city but nowadays they have an internal location into the city fabric since the new urban development has swallowed them completely. [4] The distinctive character of these areas is currently being threatened by contextual changes and it presents challenges to heritage conservation.



Fig. 2 – Former industrial buildings along the canal zones of B5. They are listed monuments. Source: Irene Curulli

By the term 'heritage' we mean both those values embedded in buildings along the canal areas, the canals themselves and the landscape, which the canal zones encounter through their course. To their 'intrinsic values' we should also add the 'instrumental' and 'institutional' one to obtain a complete definition of the value of heritage.

The interest on the canal zones of B5 is high: firstly, the former industrial canal areas are potential places of future urban development and opportunities for these cities to reconnect to their water's edge, (similarly as to those industrial waterfronts areas along the seaside); secondly, the remains of industrial areas (buildings, in particular) are visible expressions of the regional industrial past and they are strong reminder of the identity of the area; thirdly, dismissed canal areas should be considered within the 'economy' of

land in the Dutch territory, where not even a square centimetre of land can be left unproductive. All five municipalities have ambitious programs and long for new design plans for their industrial canal waterfronts; and all of them struggle with the pressure of economical issues and the power of investors and developers. The general trend is to transform 'fragments' of the larger area of development according to market needs and economical availability. The program of implementation appears to be poor when it comes to complementarity among the five cities, or the identity of the sites. Standardization of open spaces seems to be the dominant rule. The approaches and questions concerning the enhancement of the historical value of the canal zones are very important in the transformation of these areas. Policies aiming at the maintenance of the industrial heritage should form the common background of interventions.

3. UNVEILING THE INDUSTRIAL LANDSCAPE LAYERS

In 2006 started an experiment of collaboration between national, regional and local institutions, named Atelier BrabantStad. The aim was the heritage management at regional and community level and it included representatives of the five municipalities, the Province North-Brabant and the Ministry of VROM (Ministry of housing, Spatial Planning and the Environment). As a result, the collaboration brought to two actions: firstly, it recognized the 'institutional value' of the canals to be enhanced in their heritage qualities and individuality, thus favouring those processes and techniques used to create organizational legitimacy, public trust, accountability and organizational process; secondly, the collaboration defined a 'scenarios' (among other two) of reuse of the canal zones through the transformation of the existing industrial buildings for cultural purposes. Therefore, the result of this action stated the 'instrumental value' of heritage, thus focusing on the economical and environmental benefits at a community level.

These were the premises of the research on 'Industrial canal waterfronts' carried out at the Department of Architecture at the TU/e, Eindhoven University of Technology. Scope was the 'intrinsic value' of the heritage; the benefit derived from the built-up elements and its existence value. How to achieve urban regeneration and development through heritage and cultural approach? Moreover, how to sketch preliminary urban plans based on the relationship among local strategies, policies and community needs, and aimed at the assessment and preservation of existing heritage?

The research focused on the transformation of the urban section of the industrial canal zones located within each of the five cities. It investigated the landscape, urban and architectural level of the canals; the architectural scale of the existing buildings, their influence on the close surrounding and how they could contribute in raising the awareness about their role as a source of local identity.

The contribution of the research is to be found in the critical analysis of design processes and of the impact of heritage on design interventions in transforming existing derelict industrial canal zones; in encouraging the debate on valuable heritage interpretation and transformation; in promoting further surveys of the dismissed canal areas for a growing awareness on the significance of heritage areas; and finally, in formulating design principles able to integrate land use with creative requirements for a qualitative environment.

Methodologically, the investigation adopted the 'research-through-design' approach as operative method: workshops, seminars and projects development were part of the activities involved in the research process. Representative of local authorities and heritage institutions, guest advisors and students took part to them. During the research process, publications and presentations informed and engaged the public, whose feedback was integrated in the research. Each canal zones was singly analysed in relationship to the city, the canal's history and architectural characteristics, and also according to the specificity of industrial buildings that deserved special attention or because were initiators of the process of transformation. A series of maps, starting from the abandonment period,

showed how the morphology of the former industrial canal zones evolved until nowadays. The identification of historical discontinuity was encouraged as a helpful methodological instrument in the design approach. Additionally, a series of diagrams illustrated the variety of edge conditions along the water and towards the close urban fabric in order to highlight characteristics for potential connectivity and preservation. Experimental projects finalized the analysis: students developed them in collaboration with experts and representatives of municipalities and heritage institutions. These proposals tested the findings from the analysis and tried to reveal future potential for these areas. The enhancement of the heritage values has become a target at last. Therefore, the intertwining of the extant industrial fabric/buildings with new one was an asset in all designs. The same applied to the organization of open spaces and buildings, whose logical hierarchy allowed the selected area along the canal zones to be recognized and legible. Moreover, the added value of the experimental projects was to define good development footprints that would focus on place-making and on the understanding the effectiveness and interdependence between built-up environment and policies on urban transformation. Lastly, for each canal zone and from these experimental projects, different scenarios of development were outlined. They had a dual aim: firstly, to become guidelines for a design brief for the development of each canal; secondly, to reveal each canal within the wider vision of the canal circuit by creating a framework of comparison among the B5 canals. The aim was to discover and enhance complementarity.

The following pages will illustrate the process and results of the research through the canal zone of Eindhoven, one of the five industrial canals of B5 circuit.

4. THE CANAL ZONE OF EINDHOVEN: HERITAGE ENHANCEMENT IN 3 STAGES

Named 'de Kade', this canal was built in 1846 and connects the city of Eindhoven to Helmond (Fig.3). The turning basin of the canal was the densest industrial zone along the water: carpentries, tobacco and textile factories, breweries, dairies and four gasworks (demolished in 1964) were located there.



Fig. 3 – View of the industrial canal zone of Eindhoven, named 'de kade' Source: Irene Curulli



Fig. 4a –Studies of the evolution and of the current situation of the ‘edges’ of the industrial landscape of the canal zone of Eindhoven. Source: Irene Curulli

Until 1962 the canal was used to transport coal, wood and wooden rafts used for the manufacturers of cigar boxes and matches. Also the well-known Philips Electronics Factory, the biggest industry of Eindhoven, used the canal to transport glass and light bulbs. The canal was closed to navigation in 1974 and today is used for sport and recreational purposes. However, many small industrial activities are still located along the water edge

and mingle up with those remains of the industrial past, like the DAF museum (in the former Coolen & Co. ice factory), or the remains of the cigar factory Karel 1, the various buildings of the NRE-terrain, former coal gasworks area, and around the milk factory of Campina, with its large footprint.

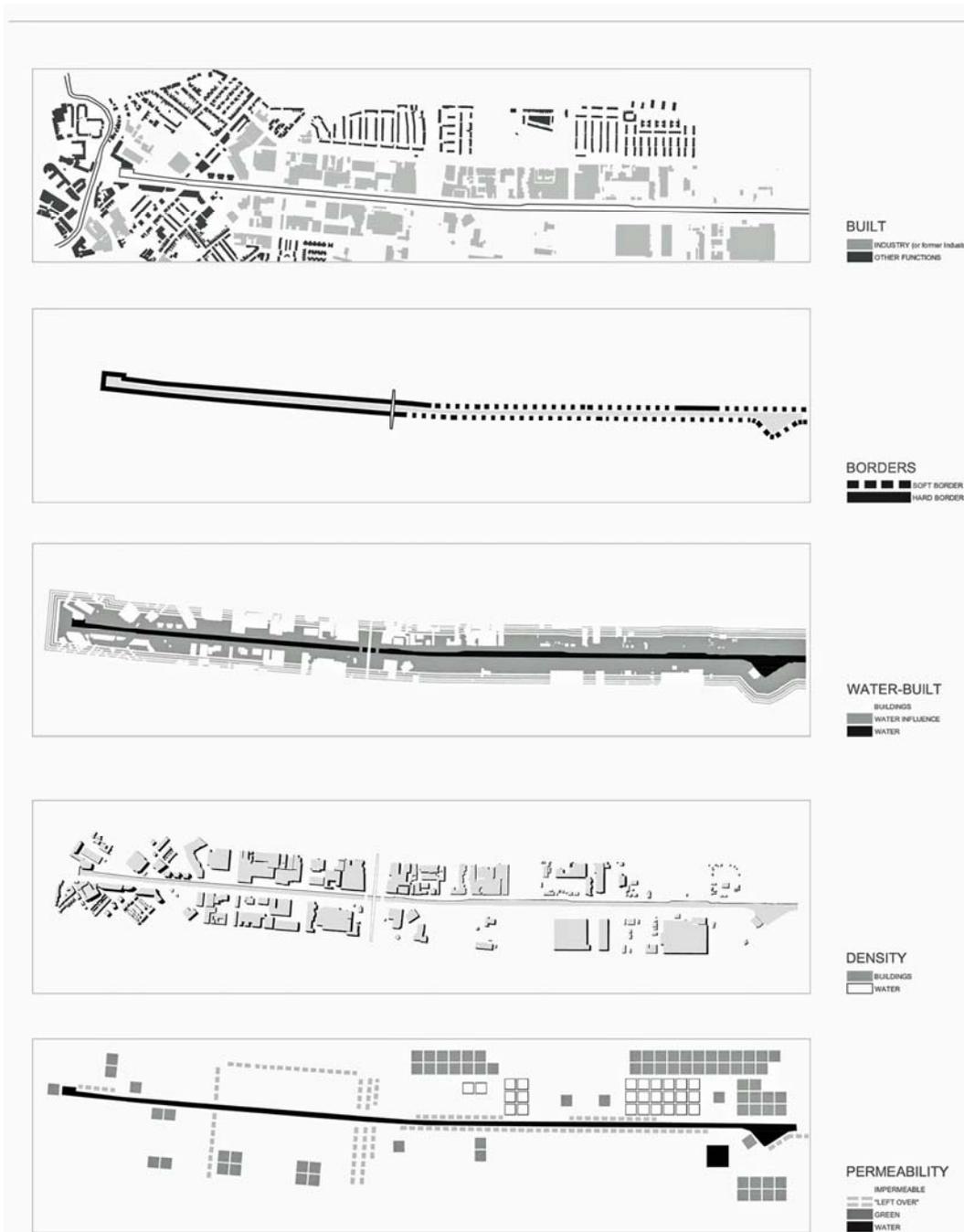


Fig. 4b –Studies of the evolution and of the current situation of the 'edges' of the industrial landscape of the canal zone of Eindhoven. Source: Irene Curulli

The research set three phases (*analytical, operational and filtering*) of investigation in order to detect the different layers of the site, to unveil their peculiarities and to recognize and enhance existing industrial heritage as strength of the site.

As a result, the detailed site analysis of the first stage (*analytical*) showed a number of key issues: a system of three disconnected layers, where the water body/harbour was both the core and the divider; the conflicting edge condition, both physical and spatially conspicuous in the discrepancy between the large footprint of the industrial canal area and refined urban pattern of the surrounding neighbourhood; the lack of permeability towards the water which makes the canal zone a visually and mentally isolate area of the city (Fig. 4); and finally, the scattered 'green' character of the canal as a potential 'east corridor' of the city. This offsets the densely built-up area of Philips Electronic factory and forms the 'west-corridor'.

Taking into account the above-mentioned key issues, the second phase (*operational*) explored a variety of solutions and applied several tools to enhance historic and environmental feature of the site.

Within the macro-structure of the area, distinctive areas were individualised in order to mediate the friction between the industrial and urban edge and allow the permeability of the industrial canal landscape towards the water. Detailed design proposals were elaborated at different dimensional scales, with emphasis on those paths running through the industrial heritage. Multiple interpretations of transformation were encouraged in order to explore the many storylines of the different places.

The various designs proposed the conservation and reuse of several old buildings (like the Campina factory or NRE-gas factory) as key elements for the maintenance and enhancement of the character of the site; they were transformed into housing, community facilities and small commercial activities. Throughout the design process, high consideration was given to the hierarchy of open spaces and their relationship with the existing industrial footprints.

The *filtering* phase consisted in sieving through the previous phases and draft schemes and principles for possible design actions. Intended as recommendation to the city planners, these schemes showed a level of flexibility in time adaptation but foremost they showed how the essential role of attentive considerations on heritage in the design process and for the perception and place-making of new intervention for the canal zone of Eindhoven. Moreover, these schemes proved that keeping a medium level of density is still possible in order to create a vibrant sense of urbanity, and to make the canal become a complementary 'green infrastructure' within the city.

5. CONCLUSION: KEY CONSIDERATIONS FOR A SENSITIVE TRANSFORMATION.

The intentions of this research was to tackle the interrelated and complex layers of the canal zones by a scientific research and design proposals that mean to prove the impact of the heritage on regeneration projects. Three were the main goals of the research: 1. to understand and enhance the industrial heritage values of the existing canals through the combination of theory (university) and practice (professionals); 2. to investigate a full-scale dialogue on concepts and architectural quality in the canal development among stakeholders in this process; 3. to illustrate how different design-based methods can serve as tools in the process.

The proposed schemes for the transformation of the industrial canal zones result from an in-depth analysis and appraisal of the context, which is essential to achieve design quality. These schemes are not prescriptive: they are guidelines for a design brief addressed to professional designers, who will take as challenge the typical contradiction between heritage conservation and development. Both are necessary for a renewed sense of place.

The search for a 'model' was beyond the scope. On the contrary, design choices and strategies are adapted to the specific and evolving situation and the adoption of an open-end approach allows dynamic development plans that are regarded as a challenge for the project in itself. Interventions on heritage buildings are then projects that call for individuality and an original solution for each case. The aim is to keep the spirit and evidence of the industrial past as wealth for the future.

The intentions and methodology adopted by this research showed the complexity of the process of regeneration and how strategic and tactful is the role of public management. In order to appraise cultural heritage, public management must perpetuate the focus on the long-term vision while balancing it with short-term results. Therefore, the success of the regeneration of the canal zones of B5 relies on the commitment of local authorities and to *ad hoc* policies aimed at the preservation and reuse of industrial heritage.

Within this perspective, the B5 canals are not to be regarded as separate entities but as a fluid network where each canal is complementary to the other. As a result, the current stagnant situation will become dynamic and will revive the past time.

The regeneration projects along the five canals are at their initial phase and only in the future we can find out if they are successful. However, the increasing enthusiasm for the culturally sensitive approaches of B5 urban growth in a 2040 perspective has already been recognized.

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AUTHOR'S NOTE

Dr Irene Curulli acquired her post-graduate degree in Architecture at The Berlage Institute Amsterdam and then the PhD title from Naples University, Italy, for researching into new codes for landscape design in contemporary architecture. In 2000 thanks to a fellowship from Cornell University, USA, she taught there as a visiting assistant professor and also researched into wastelands.

She is currently Assistant Professor in Architectural Design at the Department of the Built Environment at the TU/e Eindhoven University of Technology, The Netherlands. Her research interest lies at the intersection between architecture and landscape architecture and it focuses on the transformation of urban wastelands and post-industrial sites along waterways. She has carried out a research on 'Industrial Canal Waterfronts' in The Netherlands and recently on 'Industrial Water Landscapes' at the University of Oregon, USA. Her book (2014) on the 'Making and Remaking of dismissed industrial sites' concerns the historic, aesthetic and environmental implications in the design of reuse of these abandoned areas.

Kontakt | Contact: g.i.curulli@bwk.tue.nl