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PREFACE

The 'Urban Waterfronts and Cultural Heritage. New Perspectives and Opportunities' book is part of a focused research undertaken at the University of Florence and coordinated by Dimitra Babalis. This topic has been developed to be further discussed alongside the III INTEGRO UAD Annual Meeting held in Syros, Greece in the framework of the International Conference 'Changing Cities III'. In parallel, a special invitation by the CCIII conference organisers, conveys the same topic to be part of one's conference session, chaired by both Editors of this book.

This twin opportunity gave the possibility to the Series Editor to proceed with the publication of this Special Edition which includes some selected CCIII conference papers in their extended version, together with other research papers.

This book is aimed to go into a deeper understanding of the topic on urban waterfronts and have faith in the robust nature of cultural heritage and good design. An important issue is to identify special interest to recognise urban waterfronts as part of a sensitive urban environment. Preservation of cultural heritage including innovative regeneration and economic development initiatives is challenging for urban change. This integrated approach clearly involves diverse and complex skills across different disciplines.

Further, some of the key questions could be formulated as follows:

- What are urban waterfronts in a historic environment and how do we regenerate them?
- Do they present a real urban opportunity offering an appropriate urban quality?

Some of the answers to the questions raised previously may be included in the following chapters.

Dimitra Babalis
The Series Editor

INTRODUCTION

Changing Attitudes for Sensitive Urban Waterfronts

Dimitra Babalis and
Tim G. Townshend

The association between settlements and water connects us to the beginnings of human history and civilisation, since biologically humans have an innate need to locate themselves near fresh water. Rebuilding and renewing waterfronts is therefore a timeless activity - as archeology proves - as these places have been adapted to suit ever-changing economic, technological, political and environmental conditions. In the industrialisation period, urban waterfronts became the hubs of commercial activity, manufacturing production and export/import trades. Rivers and canals were bounded by warehouses, factories and dock facilities; and the water itself often became polluted from adjacent uses. However, in the post-industrial period, transportation facilities, ports and industries were displaced from central urban locations, older warehousing became obsolescent, abandoned and neglected. In turn however, this provided an opportunity for rejuvenation, revitalisation, reclamation and the rebirth of ecological systems.

The most appropriate way to achieve such waterfront renaissance has, however, been subject of much debate and some significant misunderstanding over the past decades. On one hand the discussion mainly focuses on understanding the significance and value of such contexts; and on the other there is the thorny issue of preservation and regeneration - these do not necessarily 'pull' in the same direction. The heritage associated with these locations in particular may be problematic. Some historic fabric is more easily retained than others, for example warehousing may be suitable for residential or other conversion. However, historically important dock infrastructure, for example, may not have any viable reuse and may be costly to retain and restore. Moreover some waterfront heritage can be controversial, or contested.

Some structures may have associations with trades and activities which do not fit neatly into a revamped, beautified and gentrified environment - how do we deal with such issues?

To understand how to manage the heritage values of waterfronts and buildings and to adapt to be functional and environmentally sustainable requires great sensitivity in proposing design solutions.

For many sensitive environments is essential to find suitable and practical solutions that balance social, economic and environmental issues within various frameworks and masterplans. But heritage waterfront areas and buildings should also offer a wider value to the local community and in terms of wider planning activities and placemaking. Too many rejuvenated waterfronts

have become exclusive enclaves for a wealthy few. Sanitised, devoid of real life, apartments are purchased by companies as investments, rather than by people as homes, restaurants and bars may create an illusion of vibrancy during the evening – but this is too often skin deep. True regeneration comes about when diverse communities are able to adopt, reuse and repurpose these places.

In addition to understanding the significance of heritage value in a waterfront environment there is also the importance of understanding historic assets. The understanding of a waterfront context should establish relationships between culture and heritage while regeneration is likely to return them into a new life.

The renewing and rebuilding of waterfront is a timeless activity in that it may have occurred over decades, centuries, even thousands of years. Considering this temporality and, moreover, the place specific timeline is crucial to understanding the inherent quality and identity of these places. This will be particularly important where places have undergone many alterations, or where alterations are particularly drastic.

A clear appreciation, therefore, of the layers of history and heritage will help decide for example which buildings/artefacts may be best kept, what might be removed to reveal an even more vital, or fascinating, earlier period and what might be best removed for future safety and perhaps restored and preserved off-site. An in depth knowledge and understanding is required to help better shape these places and to suggest the correct intervention - preservation, regeneration and/or design.

A further layer of complexity that has begun to emerge is the contribution of urban blue spaces to human health and well-being. The benefits of greenspaces as places that promote stress reduction and mental restoration; opportunities for increased physical activity; opportunities for greater socialisation; and improved environmental quality have been established for some time.

Bluespace has received less attention, however it is likely that areas which are primarily blue as opposed to green may possess this same qualities, even if their surroundings are quite hard and urban. Water may even have added benefits for example auditory and olfactory stimulation. The sound of gently running, or lapping water is calming and the colors of water bodies soothing and more generally there is a human enthrallment with water. Some work has even sought to establish whether living near water bodies can stimulate physical activity and while the research base is in its infancy the signs are encouraging. Moreover there is plenty of evidence to link water bodies with sense of place and identity. Therefore, urban waterfronts have become established as places to manage regeneration and retain culture and character. In this sense, different emerging topics should consider these new urban relationships, and urban capacity to react and maintain urban equilibrium.

Waterfront regeneration is therefore a complex activity because it directly addresses the human condition together with buildings and spaces that have multifarious, multi-layered and sometimes contested pasts – these need to be recognised and understood. Regeneration can take many forms depending on the scale, location, degree of environmental degradation, and the number, condition and typology and historic significance of existing buildings and other structures. However, whatever the site specific condition

there are twin points of departure to be considered alongside the regeneration process of urban waterfronts. The first one is to find the right method of planning and design to respect people's needs, wants and aspirations. The second is diverse community involvement, preservation of heritage, natural resources, and full exploration of opportunities and constraints. The long term impact and sustainability of all activities and proposed interventions must be fully assessed as well as the transformation itself.

As a key aspect is that of contextual reintegration and this may be achieved through the appropriate consideration of the following points:

- Re-connection within the surroundings
- Preservation of cultural heritage
- Re-use and rehabilitation of existing buildings (and sensitive insertion of new ones – where needed)
- Creation of amenities, local services, public spaces and facilities
- Placemaking and the character of the site's context.
- Opportunities for passive and active engagement with the water
- Restoration of ecology and preservation of flora and fauna.

Furthermore a flexible approach can ensure quality of waterfront areas and can guarantee a long-term delivery of urban regeneration.

At this point the questions to be raised are the following:

- How do we balance the complex and competing interests involved in waterfront renaissance and yet ensure sustainable change?
- How can we preserve identity yet allow for new development?
- And how do we involve a diverse cross-section local people to ensure social inclusion and social justice? And ensure benefits are for the many not the few?

Today urban waterfronts have changed the pattern of regeneration paying more attention to environmental issues, the preservation of historic character and reuse of old buildings; the potential for leisure and recreation; and even impacts of human health and wellbeing.

However there is a danger of viewing waterfront regeneration as a fail-proof panacea. Images of successful regeneration projects such as Baltimore's Inner Harbor and Sydney's Darling Harbour fill planning reports across the globe. Often focusing on the product rather than the process, ignoring the problems of translation and local context. Many waterfront renewal projects look suspiciously alike, with the same 'starchitect' designed buildings – or even worse pastiche copy-cat imitations. Heritage is reduced to a side show and those historic building that remain among the glittering towers are occupied by the same global coffee houses or designers clothes shops no matter how inappropriate. Not all waterfronts have - nor should they have - the same potential. Thus while interventions in these sensitive sights might be guided by common principles and similar urban design and planning processes, they must be rooted in the indigenous and unique heritage of each waterfront location. In many ways waterfronts provide the setting par excellence within the city to take us forward into the future – linking as they do the very roots of civilisation. However they do not only provide us with exceptional opportunities for regeneration projects, they also provide us with opportunities for new ways of place making for it is as Alex Krieger observed "along its waterfront the aura of a city resides and persists". (KRIEGER, 2000).

Structure of the book

PART 1 - *Historic Environment and Waterfront Challenges* provides an overview for the regeneration of built and historic environment. Therefore, a major awareness of managing and developing historic waterfronts should be established.

Chapter 1 – *Developing Guidelines for Waterfront Pocket Parks. Responsive Opportunities Along the Florence Core Riverfront* by Dimitra Babalis stresses that over the last few decades, environmental and social changes have created new forms of public space design according to community needs. The preservation of waterfronts and its cultural heritage must promote design for new living spaces and new urban conditions and opportunities that should be created. The making of sustainable waterfront environments with green, paths cycle ways, spaces for relaxation areas, playgrounds and entertainment has to be further explored. However, the nature in the city, the strengthening of various urban activities with respect for the environment are the main themes that waterfront design suggests. The various typologies of intervention are important to plan and design ecologically and sustainably the historic city and its waterfronts. Therefore, in a transforming historic waterfront environment it is necessary to design waterfront public spaces in order to: Create new places that are distinguished by high urban and social quality; Enhance waterfronts urban contexts by adding value to their cultural value; Protect urban landscape to meet a community's needs; Create new living conditions of great social inclusion. Furthermore, it is also needed to define a 'pocket park' intervention in order to create urbanity and quality of small waterfront urban spaces in the city and along waterfronts. Specifically, a pocket park is presented as a variation of spatial intervention, often a non-planned intervention, based on localisation, potentiality and characterisation of a micro space with a variety of functions and according to local needs.

Chapter 2 - *Unlocking the Potential for Human Flourishing: The 'Carbunk' Site, Naviglio Grande, Milan* by Tim G. Townshend underlines that all urban water bodies are important for urban socio-ecological systems. They are natural components of the hydrological cycle, they provide habitats for flora and fauna and are valued as places of recreation, physical activity, relaxation and restoration. However, the potential impact on health and well-being of our urban blue areas is only just becoming fully understood. Milan is an important case study for understanding the importance of such spaces This is a network of artificial canals built at different times and for different purposes, at key stages of the city's transformation. However, Milan's water system – which is not only a vital element of the city's history but also an expression of one of the most significant hydraulic civilizations of the world – was in danger of totally disappearing from Milan's townscape in the 1970s. More recently the need to acknowledge the importance of cities' water systems has since been recognized. In the Milan case many such initiatives, at different scales and with different purposes, have been promoted by various institutions and are currently in progress. These initiatives could form the foundations of a new great project for the ancient water system of the City. This chapter explores the potential of the 'carbunk' site, an 11ha semi-derelict portion of land next to the Naviglio Grande and location of the abandoned Aldo Rossi designed

San Cristoforo railway station- on the Milan-Mortara line. It explores unlocking the potential of the site for human flourishing by responding for four key mechanisms, stress reduction and restoration; opportunities for increased physical activity; opportunities for greater socialisation and improved environmental quality.

Chapter 3 - *Waterfront Future Challenges. Lisbon in the 21st Century* by Pedro Ressano Garcia analyses Lisbon's waterfront regeneration and discusses on how good practices could become the starting point to improve urban environment and integrate waterfront context with the surrounding areas. However, the ability to achieve waterfront regeneration in different circumstances requires the development of new urban strategies including interdisciplinary groups from the field of architecture, urban planning, geography, artists and urban design. The connection between transversal fields of knowledge could develop and implement solutions and draw hypotheses that can be happily applied. Design solutions address the waterfront as one entity and no longer in a fragmented way but involving governmental institutions, Traffic office, Municipality, Port Authority and Railway Company. In this context the project Plataforma Tejo can bring to the current debate. Plataforma Tejo project seem to touch sensitive cultural values as is in symbiosis with nature. The Project presents a new connection between the City of Lisbon and the port by reshaping the morphology of the surface of the landfill built over the river in order to offer several opportunities for different activities. However, the project's challenges can positively control natural threats and prevent risk of extreme weather conditions due to tides, floods and sea level rise.

PART 2 - *Waterfronts and Industrial Heritage* argues on industrial waterfronts that in the past played a very important role for the city and its people. Such places and their own distinctive character need to be preserved, re-used to achieve sustainable transformation.

Chapter 4 - *The Rehabilitation of the Waterfront Industrial Heritage Site in Piracicaba, Brazil* by Gabriela Campagnol stresses the history of the Engenho Central de Piracicaba, a former sugar factory and refinery that operated from 1881 to 1974, provides an instructive example of the complex issues involved in the rehabilitation of industrial heritage in the waterfront of Piracicaba. Since the 1980s the site and its fate have been the subject of political controversies and stewardship debates, resulting in several rehabilitation plans by renowned Brazilian architects. Among the most recent developments have been a theatre, which opened in 2012, and a Museum of Sugar, currently under construction. Through an examination of specific design approaches suggested for the rehabilitation of the Engenho Central, this chapter addresses the consequences of the disappearance of industrial buildings in general and examines the role played by architects and planners in defining the contribution of industrial heritage to contemporary (and future) urban identity. The Engenho Central de Piracicaba is the primary surviving example of the central mill system in the State of São Paulo. The facility was established in 1881 on the bank of the Piracicaba River in an area that was traditionally occupied by sugar mills. Using the hydraulic power of the river for the factory operation, it was the first central mill to be installed in the region, and one of the first

companies in Brazil to employ only free labourers. In 1985 the first master plan of Piracicaba was approved by municipal authorities. The conservation of the banks of the Piracicaba River, encompassing the Engenho Central campus, was one of the recommended components of this plan. The entire area covered by the two banks of Piracicaba River in its central portion was defined as a institutional zone, which allowed only activities of public interest as per new uses. Article 172 of the masterplan indicated the expropriation (compulsory purchase) and implementation of a public park in the Engenho Central. Furthermore, the forest alongside the banks of the river near the Engenho Central stands out as one of the three key places— and one of the only areas in relation to the urban vegetation cover in the city of Piracicaba — that are fundamental for the environmental quality index.

Chapter 5 - *Urban Waterfronts in Plomari. Preservation and Highlighting the Cultural Heritage* by Helen Maistrou underlines that seafronts and riverfronts in small Greek cities often have been degraded in the process of modern development, or have developed destroying cultural heritage and identity of place. This chapter explores the above problems and presents proposals taking into account the case study of Plomari in the island of Lesvos. Plomari developed along two main axes of the sea and the river Sedountas and has seen a particular growth in the 19th Century, due to shipping, trade and to olives and soap manufactures. Today, several valuable industrial buildings are abandoned along the river; at the mouth of the river to the sea two important industrial buildings are located that testify the industrial prosperity of the city of an uncertain future. Furthermore, the seafront widened by embankments in the 1950s resulting in a large and “embarrassment” free space, that is called “square”. It is today the largest free public space of the city, but it functions as a car drive space, without any infrastructure for pedestrians. The chapter develops: a general review of waterfronts’ transformation in Greek cities; the redevelopment proposal for Sedountas River in order to highlight its historical importance and integrate it into the life of the city; The restoration and rehabilitation project of the two industrial buildings, restoring their relationship with the sea and giving them a new function; the regeneration project of the central square in order to improve the urban environment and highlight the city’s relationship with the seafront.

PART 3 - *Waterfront Design Studio and Architectural Education* shows the importance of architectural education on designing historic waterfronts in terms of good planning and design that helps to support sustainable lifestyles and activities.

Chapter 6 - *Urban Landscape Transformations Through Waterfronts’ Re-design in Architectural Education* by Dimitris Polychronopoulos and Maria Grigoriadou shows that waterfronts have a strong character of inaccessible limits between urban landscape and nature. They began to be transformed into hybrid areas, when the initial activities associated with trade and industry fell. Many of those gradually formed into ‘urban voids’ with a strong sense of abandonment and negative consequences for the environment. Converted into inactive marks/cavities, they create significant problems and contradictions mainly at the cases where the presence of a cultural heritage nearby is with strong influence.

Architectural Schools develop educational courses and new fields of research aiming to provide students with all the necessary advanced skills and knowledge, regarding interdisciplinary issues of the urban context and cultural heritage at waterfront areas. The chapter deals with design tools and theory issues, developed since 2010 at the 'Urban Design' studio courses at the School of Architecture - Democritus University of Thrace. Focused on the analysis of urban waterfront design within a historical context, the studio placed particular emphasis on developing an open platform among University, professionals and local community. The design studio focused on the old port facilities situated at the 'Panagia Peninsula' at Kavala, Greece. The area is located nearby the city center, having characteristics of a strong geographical and historical particularities. The presence of a traditional settlement, monuments and fortification structures form a palimpsest of historical layering. The broader site has a strong tourist interest, with a distinct natural landscape. In contrast with all the above, the large concrete port platform, characterized by its monolithic form, creates disconnections and fragments with the surroundings. Apart from that, it is the expression of an extreme and sudden human imposition in 'nature', in contrast to the scale and character of the landscape formation. The studio encourages students to think on alternative guidelines for redesigning this uniform beton surface, as an open field for architectural and urban renewal ideas, connected to the landscape and existing cultural heritage.

Chapter 7 - *New Public Spaces of Post-industrial Waterfronts* by Seren Seçmen examines urban studies in which way public spaces of post-industrial waterfronts are defined and on what level they are being considered as public spaces of cultural entities. In history waterfronts have been the areas for transportation, production and economical activities; consequently they were the dynamic areas of urban life and spaces of flows of passengers, goods and culture as well. The evolution which is an ongoing cumulative spatial development process of more than two centuries that urban waterfronts are transforming under the influence of 'urban waterfront regeneration' phenomenon since four decades as a result of post-industrialisation. In time, the efforts of basic refurbishment on the waterfronts at the very initial steps of the regeneration phenomenon have evolved into a wider scope of development of new public spaces of cultural life for urban revitalisation. Today, renovated historical port areas, re-used industrial heritage structures, revitalised sea fronts is considered a current tool to re-shape public spaces to keep waterfront urban (social, economical and cultural) life convivial. However, universally in urban studies, waterfronts are defined as public spaces. On the one hand there is a tendency about evaluating post-industrial waterfront areas (of four decades) as new public spaces; Therefore, there is an ongoing debate about constantly changing demands of public life still to be better define.

Reference

KRIEGER A., (2000) "On the Waterfront: the Ideal City", Preservation: the magazine of the National Trust for Historic Preservation, vol. 52, no.2, March-April, p.324-325.



Developing Guidelines for Waterfront Pocket Parks. Responsive Opportunities Along the Florence Core Riverfront

Dimitra Babalis

Over the last few decades, environmental and social changes have created new forms of public space design according to the community needs. Today's urban spaces can be re-evaluated, regenerated, revitalised within the new urban rules. Main attention has to be paid to urban spaces and micro urban spaces within the historic environment such as micro-gardens, courtyards, waterfront urban spaces and so on. Particularly, the preservation of waterfronts and its cultural heritage has to promote design for new living spaces and new urban conditions and opportunities. Further, the making of sustainable waterfront environment with green, pedestrian and cycle paths, spaces for relaxation, playgrounds and entertainment spaces has to be further explored.

However, the nature within the historic city, the strengthening of several urban activities with respect for the environment are the main themes that waterfront design suggests. The various typologies of intervention are important to plan and design ecologically and sustainably the historic city and its waterfronts. Therefore, in a transforming historic waterfront environment it is necessary to design waterfront public spaces in order to:

- Preserve character and image of place
- Enhance waterfront urban context by adding value to its cultural value
- Protect urban landscape to meet community's needs

- Create new places that are distinguished by high urban and social quality
- Create new living conditions of great social inclusion.

Waterfront pocket parks in sensitive urban environment

A sensitive urban environment¹ in transformation is increasingly vulnerable, often with significant consequences for its heritage value. So, urban strategies are more needed to protect and preserve local identity to respond to physical, social and economic adaptation, to consciously address environmental issues. At this point it is essential to define some significant conceptions on urban space design while the concept of 'urban resilience'² has to be understood as an important component for a sustainable development strategy that intelligently acts on the city pattern and specifically on urban spaces. "Cities need to begin exploring effective strategies for developing greater capacities for resilience to the future impacts of both climate change and energy scarcity"³. Precisely, urban resilience thus translates into a strategy process to plan and design waterfront spaces and micro spaces with greater awareness, self-sufficiency, capacity and adaptation to climate change and people needs.

¹ 'Sensitive urban environment' can be defined as a historic environment with heritage values to be preserved and historic waterfront patterns to be transformed and to be protected from climate changes. Urban and historic waterfronts can be also considered as sensitive urban environments.

² See, <http://www.ilnuovocantiere.it/rigenerare-le-citta-con-la-resilienza/>, <http://www.resilientcity.org/index.cfm?pagepath=Resilience&id=11449>, <http://www.1000resilientcities.org/resilience#/-/>, accessed March 2017.

³ See www.resilientcity.org, accessed: March 2017. In this context, 'Urban Resilience' for a social system is considering as the capacity to face transformation without losing identity of place; It is a main way to face social difficulties, urban origins, local history, urban pattern and local needs.

Florence and the River Arno with floating structures background (Image by D. Babalis).

Bridge of Love Masterplan hand drawn by Architect Claudio Nardi (Image by Claudio Nardi Architects).

'Bridge of Love'. A temporary floating structure built for a fashion event in 2016 by Claudio Nardi Architects (Image by D. Babalis).

To this end, it is also needed to define 'pocket park' as an intervention to create urbanity and quality of small urban spaces in the city and along urban waterfronts. SPINELLI (2010) defines a pocket park as a variation of a spatial intervention, often non-planned, based on localisation, potentiality and characterisation of a micro space with a variety of functions and according to local needs⁴. In this context, pocket park has to be defined as a "micro place of sociability, nature, wellbeing, diversity, resilience and flexibility. The design of a pocket park should preserve local identity, character, connectivity to create sense of place and has to respect community needs. A pocket park intervention can positively influence transformation of other surrounding micro spaces in the locality".⁵ Additionally, a 'waterfront pocket park' is defined as an "urban intervention in order to regenerate waterfront micro spaces and can activate a number of reactions on a macro scale".⁶

A waterfront pocket park intervention needs to consider 'contextualisation'. With this 'technique' a series of surrounding waterfront micro spaces are expected to be generated within the wider city.⁷ (BABALIS, 2017)

The panorama of waterfront micro urban spaces in sensitive urban environments tend to be scattered and disconnected from each other due mainly to the following:

- Temporal diversity they were created
- Physical changes and amendments
- Lack of good planning and design.⁸ (BABALIS, 2017)

A good regeneration strategy for waterfront micro spaces can create new urban scenarios appealing and accessible to everyone. Well-designed micro spaces can meet the people needs from an environmental and ecological point of view. Green spaces, for example, can help regulate micro climate

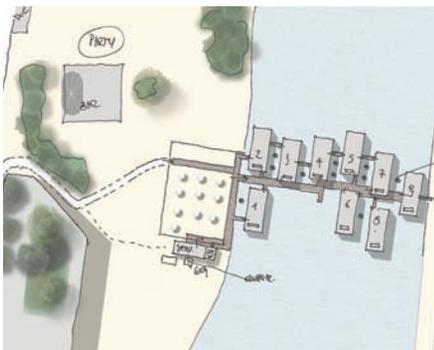
⁴ SPINELLI G., (2010), *Giardini tascabili - Harlem 1965: i primi pocket-park*, in <http://mall.lampnet.org/article/articleview/12939/0/191/>, accessed: February 2016; See also SEYMOUR, W.N., (ed) (1969) *Small Urban Spaces: The Philosophy, Design, Sociology and Politics of Vest-Pocket Parks and Other Small Urban Space*, New York, New York University Press; MCPHEARSON, T. E MARSHALL, V. (2015) *Micro-Urban: The Ecological and Social Potential of Small-Scale Urban Spaces. The Nature of Cities*, retrieved in http://www.thenatureofcities.com/2015/01/03/micro_urban-the-ecological-and-social-potential-of-small-scale-urban-spaces/, accessed: May 2017.

⁵ This definition of a 'pocket park' was developed by DIMITRA BABALIS within the funded research: *Pocket Parks for all. The Evaluation of Residual Spaces as a Resource for Urban Quality*. (Years: 2014-2016). This definition has been formulated in an attempt to interpret some design principles based on both tangible and intangible urban qualities but also the transformable ones.

⁶ The definition of a 'waterfront pocket park' was developed by DIMITRA BABALIS within the funded research on *Waterfronts and Eco-sustainable Urban Management* (Years: 2016-2017).

⁷ BABALIS D. (2017) 'From River to Riverfront. Sustainable Masterplans and Connected Waterfront Urban Spaces along the Southside of the River Arno in Florence' in BABALIS D. (edited by) *Waterfront Urban Space. Designing for Blue-Green Places*, Altralinea Edizioni, Florence.

⁸ ibidem.



and facilitate urban permeability, with the inclusion of a number of cultural and social activities that are inviting to foster socialisation and wellbeing.

However, especially in a historic environment, sustainable and resilient design of waterfront pocket parks must be considered to be of great potentiality.

In this regard, a large and careful reading of selected waterfront micro spaces can activate a process for urban transformation that considers history, architecture, functionality and relationships of a place. It is also obvious that local community can better suggest design intentions to respond to sustainable urban transformability of a place.

However, new urban lifestyles, which represent new social, economic and cultural attitudes should re-create new conditions for connectivity, accessibility and urban quality⁹. (BABALIS, 2017)

If in a historic environment a waterfront urban space is considered an opportunity, a well-defined urban space should be recognised to the design purposes, to the cultural and social values of space itself.

Nevertheless, the following question can be put: How can waterfront micro spaces in historic environment be transformed in order to share natural features and provide new spaces for relaxation, recreation, play, exercise without disturbing historic beauty and heritage values?

In a historic environment, the designing of micro green spaces, cycle, pedestrian paths and car sharing places for sustainable and smart mobility may be not enough to ensure urban quality. It is, however, necessary to introduce ecological concepts and micro climate management to ensure a healthy and safe life and strengthen local identity for community cohesion. On the other hand, the need for a variety of functions on space diversity should ensure preservation of historical values and evaluation of places of great potentiality.

Transformation ability of selected micro spaces can demonstrate how strategic and dynamic approaches are needed to define a well-coordinated local vision. Thus, the revitalisation of micro spaces can help local authorities to preserve and enhance cultural heritage. So, any new state-of-the-art process requires a strong dialogue

between the parties to cover even economic requirements. (BABALIS 2016).¹⁰

More particularly, designing for waterfront pocket parks, is essential to go deeper on understanding characteristics of open spaces and their historic significance and evolution to be considered as principles for placemaking. The values of different types of open space, stated by FRANCIS (1988)¹¹, include historic importance and character of a place together with location, spatial configuration, aesthetic, variety of uses. Further, the diversity of open spaces, argued by CARR ET AL (1992)¹² is based on the need for people to take advantage of a space through various activities such as comfort, relaxation, enjoyment of nature, socialisation and interaction. So, open spaces must allow people to interact socially, be accessible to everyone, cover local people needs.

However, ROGERS (1999)¹³ defines open space as part of the urban landscape by identifying three factors of change: technical revolution, ecological attitude, sustainable development and social transformation with new lifestyles. It is important, therefore, to lead transformation of waterfront open spaces with common ideas and actions in order to make it socially more attractive, safer, accessible, smart and comfort to micro climate conditions. Successful transformation should be dynamic and comfortable through space configuration, movement, connectivity

Florence: River Arno and Colombo Riverside (Image by D. Babalis).

⁹ BABALIS D. (2017) 'From River to Riverfront. Sustainable Masterplans and Connected Waterfront Urban Spaces along the Southside of the River Arno in Florence' in BABALIS D. (edited by) *Waterfront Urban Space. Designing for Blue-Green Places*, Altralinea Edizioni, Florence..

¹⁰ BABALIS D., (2016), 'Capturing' the Change of Urban Space in Historic Environment, in Babalis D., (edited by) *Approaching the Integrative City. The Dynamics of urban space*, Altralinea Edizioni, Florence.

¹¹ FRANCIS M., (1988) *Changing values for public space, in Landscape Architecture*.

¹² CARR S., ET AL (1992) 'Needs in public space' in CARMONA M., AND TIESDELL S., (Eds) (2007) *Urban Design Reader*, Architectural Press/Elsevier.

¹³ ROGERS R., Urban Task Force Report (1999), *Towards an Urban Renaissance*, London.



management, and the introduction of proper new functions.

Consequently, waterfront pocket parks should offer more vitality and urban quality in historic environment such as:

- Heritage protection
- Flood protection
- Environmental comfort
- Accessibility and connectivity
- Functionality, leisure, play, relaxation, etc.
- Smartness and technical evolution
- Social inclusion and new lifestyle
- Sense of place and locality.

Waterfront pocket parks: Types

Some typologies of intervention are aimed at actions perfectly compatible with existing considering constraints of waterfront sensitive sites.

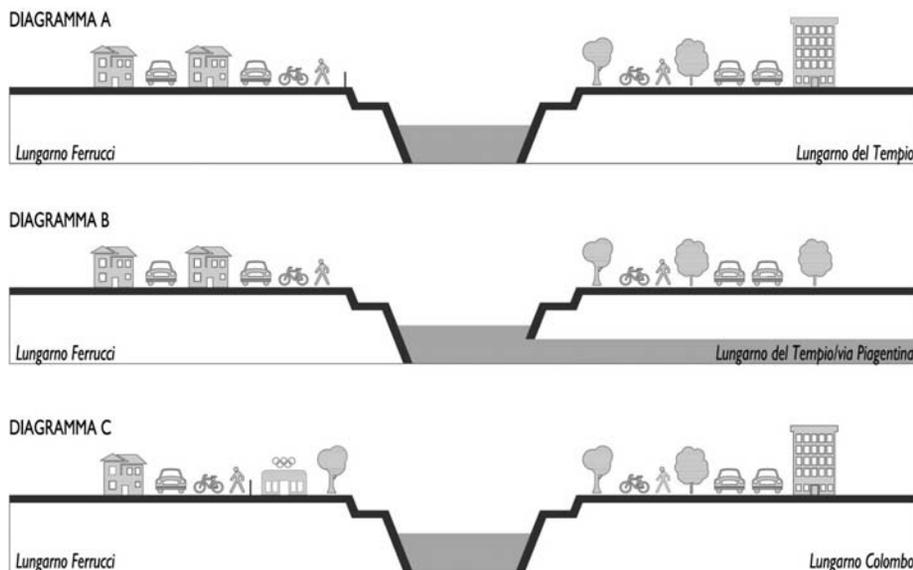
The types of waterfront pocket parks are defined on the base of their function and use, spatial configuration and usability. Great importance should be given to the ecological and sustainable concept that concerns the following aspects:

- *Re-naturalisation / buffer zones* with green elements to improve quality of urban environment; to improve micro climate; to create collection systems for water filtering and re-use of rain water; to improve shading; to protect from pollution; to protect from inundation

- *Greening / greenways* to enhance waterfront context and to regenerate pedestrian and cycle paths in order to guarantee accessibility for users
- *Parks and Parklets* to generate urban quality, new living spaces, spaces for socialising
- *Relaxation areas / Sunset parklets* to enjoy with green spaces for wellbeing and urban vitality
- *Playground* to develop play and wellbeing; to provide recreational and physical and motor children activities
- *Street workout park* for open-air sport activities for wellbeing
- *Pop-up cafe & restaurant* with permanent or temporary restaurants and green spaces for refreshment and parking; to regenerate residual micro spaces: suitable for city events
- *Smart Areas* to define use of micro urban spaces according to innovation and technology; to enhance quality of services, facilities and businesses; to address urban challenges. Smart areas with social and technological aspects; relaxation panels and temporary exhibitions; photovoltaic energy-saving panels
- *Smart energy gym / fitness* to produce clean energy through gym activities and wellbeing
- *Urban farming / Urban gardens* to meet local needs for organic agriculture; to encourage social inclusion and participation; to landscape and improve environment; to be used as educational tool for children towards healthy food
- *Focal points / Cultural points / Public Art* for creativity and sociability
- *Flood Protection Park / Flood control park* to protect the land from natural phenomena; to improve quality of place with barrier green spaces; to stimulate social relationships used as places for sport.¹⁴

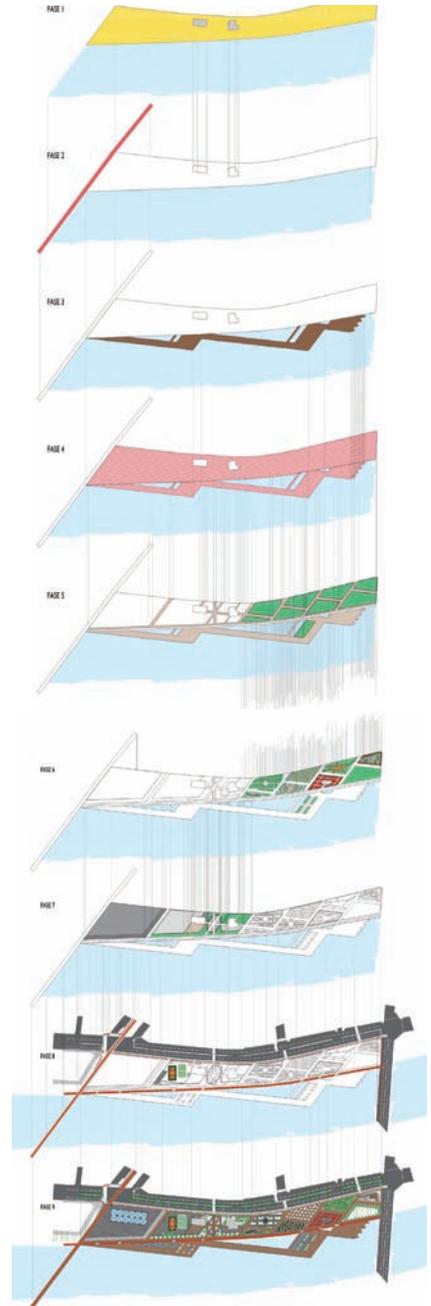
¹⁴ The various types of pocket parks have been studied by DIMITRA BABALIS after a detailed analysis on a variety of case studies, taken into consideration within the funded research, mentioned in note 5. See also: <https://en.wikipedia.org/wiki/Greening>, <https://it.wikipedia.org/wiki/Greenway>, <https://it.wikipedia.org/wiki/Playground>, https://it.wikipedia.org/wiki/Street_workout, accessed: March, 2017.

¹⁵ Florence City Centre has been included within the UNESCO World Sites List since 1982 in www.firenzepatrimoniomondiale.it, accessed: March 2017.



Waterfront pocket parks: To the River Arno and along the River

The city centre of Florence, UNESCO World Heritage Site¹⁵, is internationally recognised for its unique and compact spatial configuration. The urban pattern of the historic city today needs a special attention to guarantee a 'new life'.





Unlocking the Potential for Human Flourishing: The 'Carbunk' Site, Naviglio Grande, Milan

Tim G Townshend

Urban water bodies of all types, sizes and locations have undergone re-evaluation over the past fifty years. Commencing with major urban interventions, such as the Baltimore Inner Harbour project in the 1960s, over the intervening period all over the globe cities have reassessed their water bodies and where necessary turned them from negative into positive assets. However, this is an ongoing process which is less than straightforward for some municipalities. Milan, for example, had an extraordinary system of canals that were developed over many centuries, making it one of the most significant hydraulic civilisations of the world. Unfortunately in more recent times much of this exceptional infrastructure was lost, as it became perceived as a barrier to progress rather than the symbol of civic pride it once was. Canals were filled in, culverted over and abandoned until by the late 20th Century little of the system remained intact.

Today there is an appreciation that, if they could be recovered, these incredible feats of navigation would be a huge asset to the city and plans for their (at least partial) excavation and reinstatement are being explored. This is not simply about valuing an historic fabric, however. As attitudes to water within our cities has changed, the importance of these sites for human health and well-being is also beginning to be appreciated.

With these parallel issues of water, heritage and well-being as central considerations, this paper overviews a project undertaken by MA Urban Design students at Newcastle University, UK. The aim was to explore the potential of a site adjacent to the Naviglio Grande, one of the few canals to remain relatively untouched in Milan. Currently, the site is the location an abandoned project by Italian State Railways (Ferrovie dello Stato Italiane) and lies officially derelict - though informally partly occupied as outlined below.

Waterfronts and human Flourishing

There is an increasing body of research on the links between urban water (bluespace/blue-green infrastructure) and impacts on human health and well-being. Most particularly the potential of water bodies to contribute to notions of human flourishing has been a focus of recent research. While sources of water have always held a special relationship with human habitation, healthfulness was most often associated with special places - such as fresh water springs. Water systems more generally were perceived as possessing a Janus faced nature, bringing a much needed life source, but also capable of being deadly - a source of pollution, disease, flooding and drowning. In many cities

- especially where water management has been problematic - such attitudes have been slow to change. However, the potential contribution of everyday waterscapes to human health and well-being as locales for physical activity, mental restoration and socialisation are now becoming more fully understood (TOWNSHEND, 2016).

'Flourishing' itself is also a relatively recent concept and has been most closely associated the development of the field of positive psychology (see for example DODGE ET AL., 2012; VANDERWEELE, 2017). Here it has been used as an all-encompassing term to incorporate both 'hedonic' (happiness and satisfaction with life) and 'eudaimonic' (positive psychological function and human development) interpretations of human well-being (KEYES, 2002).

In other words it encompasses, mental and physical health, happiness and life satisfaction, good social relationships and promoting a sense of purpose and fulfilment. In the project described later in this chapter students were challenged to design an environment to meet these goals and that exploited the potential of water to provide an environment supportive of human flourishing.

Milan's Historic Water Network

Geographically, Milan is located in the northern part of the river Po valley - approximately halfway between the Po River and the foothills of the Alps, to the north. The plain has the Ticino River to the west and the Adda to the east. Over the centuries, these two major rivers were connected with a system of important canals, commencing with the Naviglio Grande canal, which was constructed between 1179 and 1219. Milan itself is not located on a major river, so the canals were essential for both water supply and carrying goods. Indeed as far back as Roman times, water courses such as the River Olona, were diverted and redirected to supply the city. Milan, therefore makes an interesting location for a water related urban project, because of its incredible historic relationship with water supply.

The network of canals continued to be built at different times and for differ-

ent purposes and in particular were developed at key stages of the city's transformation.

The Naviglio Grande and the Fossa Interna (inner moat) both took shape in the Middle Ages; their impact on the city fabric still clearly traceable today. Originally the Naviglio Grande was not navigable into the city, this only came about in the later 13th Century when the Darsena dock was established (CELONA & BELTRAME, 1982).

The Fossa Interna surrounding the medieval walls became navigable in 1497, forming in effect a ring-shaped harbour around the city, lined with a series of warehouses with large courtyards facing onto the canal. This set in train the urban development of the city as later concentric rings of development and canals followed.

The Naviglio Grande enabled huge blocks of marble to be transported from Lake Maggiore for the construction of Milan Cathedral (Duomo). The differing levels of the water system were resolved by the use of locks, some designed by key figures, such as Leonardo da Vinci (MIGLIACCI, et al., 2005). This illustrates how much the urban form and the architectural characteristic of the pre-industrial city owes to the water system. Even during the industrialisation period, raw materials were largely brought into the city, and manufactured products transported out by water and this established Milan's pre-eminence as the commercial city of the region.

Eventually the city was interconnected with a 'spider's web' of concentric canal development and they remained an important transportation system providing for the city's commercial needs into the 20th Century. At the turn of the 19th/20th centuries however Milan commenced a process of urban change which was to adversely impact the viability of the canal system. As the city embraced the new technologies of rail and motorised road transportation, the canal system began to be viewed negatively and as an obstacle to change and modernisation - the spaces they occupied were seen as providing the solution to an increasingly congested city. And so in less than a century, almost all of the canals were erased either by culverting (building over) or infilling and much of the related townscape, and

artefacts such as lock structures were eradicated (PRUSICKI, 2014).

In the 1950s, desperately needed materials for reconstructing the badly bombed city were still being transported by canals, but by the mid-1970s, only a handful of canals were still in operation. One of the most significant impacts (as can be seen in the plans) was that the Fossa Interna, the very heart of the system, was truncated. These interventions interrupted the continuity between the Naviglio Martesana, the Naviglio Grande and Naviglio Pavia, which had previously allowed navigation across the city as well as the irrigation of the agricultural areas to the south. The interruption of water flow, therefore, not only ceased a navigable route but also caused water shortages which affected agriculture, the landscape and the entire regional ecosystem.

The Darsena

Milan's water system was, therefore, not only a vital element of the city's history but also an expression of one of the most significant hydraulic civilizations of the world. Somewhat belatedly this significance was acknowledged and the desirability of rejuvenating those canal areas that still existed taken on board. The Naviglio Grande, for example has remained a major resource for sport and recreation to all sorts of people. Along the Naviglio Grande there are a number of old sports clubs for, for example, swimming and rowing. The regeneration of the Darsena (at the end of the Canal) was subject of an international competition in 2004.

The completion was won by a group led by French architect Jean Francois Bodin and after some initial difficulties, the scheme was completed for the Milan Expo 2015.

It has created a wide pedestrian promenade around the quay, uncovered the Ticinello Canal for the first time since the 1930s and involved the restoration of a number of historic canal bridges. The whole area is now very popular for day time markets and night life focussed around the many restaurants and bars. A cycle path connects the Darsena to the Naviglio Grande providing access to open areas of agricultural land, the leftovers of what once was the very productive countryside to the south of Milan.

Reconsidering the canals

Building on the success of the Darsena regeneration, further reinstatement of the system has been explored. Initiatives, at different scales and with different purposes, have been promoted by various institutions and are currently in progress. These proposals could form the cornerstone of a new great project for the ancient water system of Milan. Moreover approaches could potentially have multiple facets of urban planning, ecology, hydrology, renewable energy and traffic management.

At present most proposals appear to focus on the reuse of the waterway for recreational purposes. Studies have shown that acceptable flow rates are possible, with a good water quality. Further schemes could have a significant impact on to improvement flood management in the whole territory (SIBILIA ET AL., 2017).

One particular scheme is to daylight (uncover) the Naviglio Martesana reconnecting a navigable route from the north to the south of the city. Canal expert Prof. Marco Prusicki has stated that it is vital to re-establish the relationship between waterways, streets and buildings, (a hierarchy overlooked by the modernisers of the city) "not just nostalgically, but considering instead the new role water can play in shaping the contemporary city" (2017).

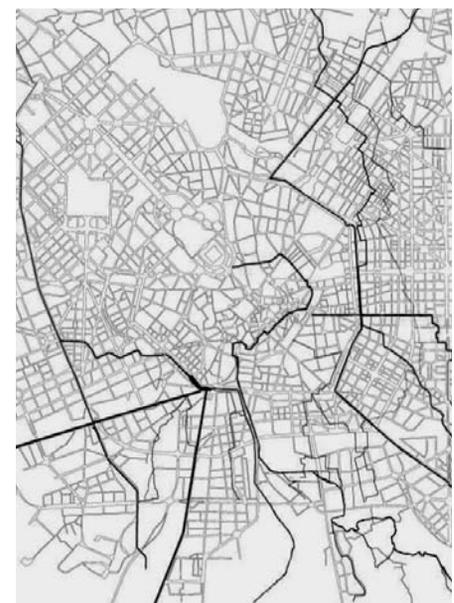
The 'Carbunk' Site, Naviglio Grande

Aldo Rossi's famous building in Milan is Gallaratese II, Via Enrico Falck a housing complex of 2400 inhabitants it was completed in 1970. Aldo Rossi designed the complex to be a self-contained village which was dubbed a 'palais social' by its tenants and is well-known today. However, Rossi also had another project in Milan, which while internationally less well known is more notorious.

Aldo Rossi and Gianni Braghieri designed a new railway station terminal at San Cristoforo as an extension of the San Cristoforo goods yard complex. San Cristoforo is situated on the Milan-Mortara line (in the south-west of the City - almost at the border with Corsico). The station was to be the departure point for trains from Milan

Milan's canal system, 1888 - an intricate 'spider's web' of water channels.

Contemporary situation of Milan' Canal system, showing the disconnection within the system (Image by M. Prusicki, 2017).



The refurbished Darsena area (Image by Tim Townshend).

Feasibility study to 'daylight' the Naviglio Martesena (Image by M. Prusicki, 2017).

to Paris and pilgrims to Lourdes in particular – the project included spaces to receive pilgrims, a first aid structure and a chapel.

More specifically the whole operation was designed to take passengers and their cars on to the system (generally referred to as 'motorail' or 'auto-train' services in English – a popular technology from the 1960s to the early 1990s). The site is sometimes referred to as the 'Carbunk' (the origins of this are unclear – but may be a play on the use of carriages to stow cars but also the 'carbuncle' meaning something unsightly – for example the magazine Building Design in the UK awards an annual 'Carbuncle Cup for the ugliest building of the year).

The scheme was never completed and while the motivations to abandon the project by Ferrovie dello Stato Italiane are not entirely clear, it is likely because the popularity of taking cars on trains was already waning during developmental stages (there are now very few services across Europe).

In the end only the framework of the building (and oddly the access ramp to the adjacent road bridge) were completely and the whole 11 ha site has lain 'disused' (though informally occupied as discussed below) ever since.

The abandoned skeleton of the building has been branded an 'eco-monster' by the Italian media (Almagioni et al., 2008). Such structures are usually

demolished, however the involvement of Rossi and Braghieri, means that this structure is viewed by many as of architectural significance – at very least it complicates the situation and its destruction would be controversial and so the structure faces an uncertain future and its fate still hangs in the balance.

Finally the planning regulation of the site are such that no new volumes are allowed on the site (new structures along the Navigli are prohibited). This is very restrictive, as it effectively means that while reuse of the structure is not impossible, whatever happens, the structure will remain isolated within an open site and therefore the location is destined to remain largely vegetation.

The Student Project

The project to 'unlock the potential of the 'carbunk' site for human flourishing' was run as a design studio in the second semester of the MA Urban Design programme, School of Architecture, Planning and Landscape, Newcastle University. A field study visit was conducted February 2017 and completed projects submitted in May 2017; three groups of student submitted projects the work contained in this section was submitted by Adem Altunkaya, Laurence Bonner, Ryan Conlon and Diva Jain.



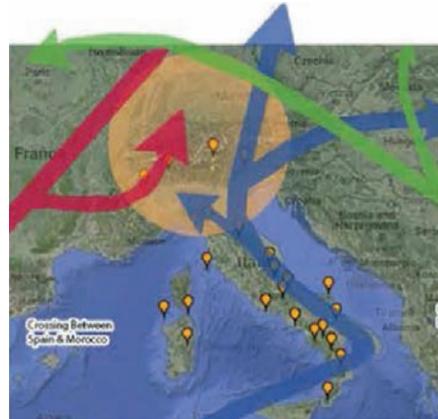


Informal occupation of site for allotments.

The seasonality of the site was carefully analysed and the needs of local and migrating wildlife considered and mapped across the various landscapes created.

Proposed conceptual development.

South-north cross section through the canal and site.



CONTRIBUTORS

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