

# Postindustrial Landscape Redevelopment: addressing the past, envisioning the future

Luis Loures, Jon Burley, and Thomas Panagopoulos

**Abstract**—Investigators of site design and planning projects are shifting their scholarly emphasis from the design of single case study projects and isolated objects towards focusing upon meta-studies by examining the design of larger urban surfaces and the results from many projects, thus increasing the understanding concerning the impact of such interventions. This meta-studies process facilitates building landscape architecture theory, providing a widely accepted theoretical framework based on specific design principles and norms from which might influence and guide practical development. The analysis of postindustrial land transformation case studies considering both design principles and strategies used in redevelopment, constitutes a relevant framework towards the definition of new design and planning normative theories. For this reason, this research, was based on the examination of 346 case studies across the globe, and a closer examination of six postindustrial case studies (Duisburg, Germany; Lisbon, Portugal; Amsterdam, Netherlands; Cleveland, Ohio, USA; Toronto, Canada; and Chicago, Illinois, USA), in order to build a normative theory based on a set of planning and design principles that might inform future post-industrial land transformation practice. Our study reveals 37 design and planning principles applied across the six case studies.

**Keywords**—case study, design principles, normative theory, postindustrial landscape.

## I. INTRODUCTION

THE fact that theory development in planning and design arena requires generally the evaluation of practical projects developed by experienced practitioners, which are normally imbedded within planning and design firms that are too busy to publish and share their knowledge, describing effective planning and design principles for reclamation, explaining useful normative theories in creating efficient landscape configurations, and illustrating valuable planning and design processes to achieve redevelopment success,

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reduces both the capacity for theoretic development and dissemination.

This scenario, coupled with the recent shift of emphasis from the design of single and isolated objects to the design of larger urban surfaces [1], thus increasing the impact of such interventions, highlighted the need to create an original body of landscape architecture theory, providing “a responsible structure with attendant principles and norms from which prescriptions for action may be drawn” [2].

Under this framework, theoretical reflection and discussion have been identified as an important issue in revitalizing cross-cultural exchange in landscape architecture and urban design. As mentioned by Fung (1999, p.149) “theoretical activity can enrich our sense of the possibilities associated with such exchange and can be motivated by impulses that are kindred to those that motivate landscape interventions” [3].

Still, besides the need to establish a somehow unifying theory, which “might play a useful and important role” in Landscape architecture and urban design [3], designers should move in a direction that recognizes that much can be learned from both design research and practice [4]. As noted by Swaffield (2002, p.1) “theory can also evolve from practical experience” [5]. In fact, as mentioned by Fung (1999, p.149) “it is evident that theoretical reflection and the work of practitioners can be related as activities that are motivated by the same kinds of impulses, searching after effects in domains of endeavor that are cognate with each other” [3].

However, as Corner (2002) points out the answer to questions as, why theory? why should we need it? why bother? show that the need for an unifying theory is not consensual [6]: on the one hand there are those who would argue that there is no need or time for theory today and that we have too much of it already; on the other hand the ones defending that landscape architecture is primarily a craft profession, an artisanal practice requiring multiple skills and talents. Still, as stated by Swaffield (2002), quoting James Corner it is clear that theory may play two different important roles [5]:

- the first connected with the ability to generalize and codify knowledge as a basis for practical action, a theory which is typically derived from empirical observation. For example “the staged approach to site planning, codified into a set of principles (...) is one of the most widely used instrumental theories in landscape architecture” [5].

- the second with the capacity to resist and challenge standardized ways of thinking, putting forward alternatives,

maintaining variability and fomenting change.

In this regard, as mentioned by Lang (1994), urban design [as well as landscape architecture] will hardly be the effortless, intuitive, artistic activity many professionals want it to be [4]. Even if many architects chose often to reduce their area of concern and continue to operate in “a fine art mode”, which requires no more than self-expression, they need to acknowledge both that being an artist should not be the central role for all designers, and that even if not directly connected to a specific theoretical framework, architects often base their projects in specific design principles which are an integral part of theory.

In this regard Lang (1994) affirms that design has to be theory-based, given that “while the process of design thinking may be universal (although specific design methods may differ from culture to culture), the substantive knowledge of how the world and the nature of the effective environment have to be framed within cultural contexts” [4]. Even if postindustrial redevelopment practice is not single oriented (some of the works lean toward architectural design; others are more landscape architecture oriented; yet others are closer to urban planning concerns) current approaches are mainly “site-specific and driven by economic development motivations, which does not offer the full potential for sustainable reuse and revitalization that extends beyond property lines” [7], reducing to some extent redevelopment possibilities.

This situation is in some way connected to the fact that most of postindustrial redevelopment approaches are mainly based in professional taste and self-motivation. In this regard, “*there is a continued need for rigorous research and the integration of the research results into design theory*” [4].

Additionally, the fact that theory development in planning and design arena, requires normally the evaluation of practical projects case studies by experienced practitioners (which are normally imbedded within planning and design firms that are too busy to publish and share their knowledge) “*describing effective planning and design principles for reclamation, explaining useful normative theories in creating efficient landscape configurations, and illustrating valuable planning and design processes to achieve reclamation success*” [8], reduces both the capacity for theoretic development and dissemination.

Furthermore, even if a lot of case studies and best practice examples can be found in literature [9], [10], [11], [12], they are often poorly addressed and normally do not focus the issues that might influence and inform theory development. In this regard, the analysis of postindustrial land transformation case studies considering both design principles and strategies used in redevelopment, constitutes a relevant framework towards the definition of new design and planning normative theories, enabling somehow the reduction of the existing dissimilarity regarding theoretic and practical development in the field of urban planning and design.

In this regard, throughout this investigation several case studies were indentified, addressed and analyzed considering

the method presented by Francis (1999) in order to identify a set of planning and design principles that might inform the creation of a specific postindustrial land transformation theory [13]. The use of this method, coupled with the framework proposed by Lang (1994) will enable the identification of a set of postindustrial landscape redevelopment planning and design principles that may inform the creation of a specific normative theory, which might serve as a basis for the redevelopment of similar proposals [4].

## II. CASE STUDIES

Consisting in “*a well-documented and systematic examination of the process, decision-making and outcomes of a project that is undertaken for the purpose of informing future practice, policy, theory and/or education*” [13], case studies are considered to be a very important research strategy and a proficient tool to present and analyze specific projects [13], [14], [15], [16], [17], [18], which enable the analysis and comparison among similar case studies.

This method has been applied, successfully, in various fields of knowledge as it is the case of medical research, sociology, engineering, planning, architecture and landscape architecture [19]. Furthermore, it is a very useful tool to study the way in which certain design problems were solved and which strategies should be followed or avoided [13, 19]. Case studies are considered a source of practical information, and an effective way to teach by example, of acquiring problem solving skills and of developing useful evaluation strategies [13].

Additionally they are also very useful to explain or even predict theory related to practice. In this case multiple case studies are looked at with an eye for generalizable lessons or principles that can advance knowledge [13]. The evidence for multiple-case studies is generally considered stronger, reason why the research is considered more robust [16]. However, multiple-case study analysis requires extensive resources and time.

The fact that this method uses a variety of research techniques (experimental, quasi-experimental, historical, storytelling | anecdotal documentation as well as multi-method approaches) and sources of data and evidence constitutes one of the strengths of the process [13], [20], [21], which enables researchers with opportunities to triangulate data in order to strengthen the research findings and conclusions, to build upon theory, to produce new theory, to dispute or challenge theory, to explain a situation or phenomenon, etc. [21], increasing the validity and reliability of the research.

Additionally, as mentioned by Moudon (2007, p.364), “*while research is usually associated with substantive information and with understanding specific phenomena, it is expected that research for urban design will yield information that has normative dimensions and that eventually helps design*”, proposing recommendations for future design [22].

In this sense, considering the premise according to which

nothing is more important to theory than its respective practice [23], the use of case studies was considered to be very helpful, given that, as it was pointed out before, while not always used with this objective, case studies can play an important role in developing new theory [13].

#### IDENTIFIED CASE STUDIES

Considering the objective to collect, analyze and organize as much information about postindustrial land transformation projects, as was possible within the boundaries set by schedule, the lack of common theory regarding postindustrial redevelopment, and the abovementioned premise concerning the importance of practice in theory [23], 346 postindustrial land transformation case studies (Figure 1), located all over the world, were identified throughout the application of several information gathering techniques (literature and database review, project analysis, and informal interviews and meetings both at the academic and practical levels).



Figure 1 – Geographic distribution of the identified case studies – Used by permission of Luís Loures, all rights reserved  
Note: Case studies with similar location were represented by a single red dot.

#### ADDRESSED CASE STUDIES

After identifying the 346 land transformation projects it was necessary first to address the availability of data regarding the project, and second to verify the possibility to access, collect and use that data. If the necessary information was available, and the case study was considered relevant for the present research, the project was addressed, describing the used approaches, the applied design strategies, lessons learned from

such redevelopments and the ways in which designers have transformed postindustrial remnants, solving problems and envisioning new futures for these redevelopments.

Following these procedures 139 postindustrial land transformation case studies from all over the world (which geographic distribution is shown in figure 2) were listed and addressed independently.

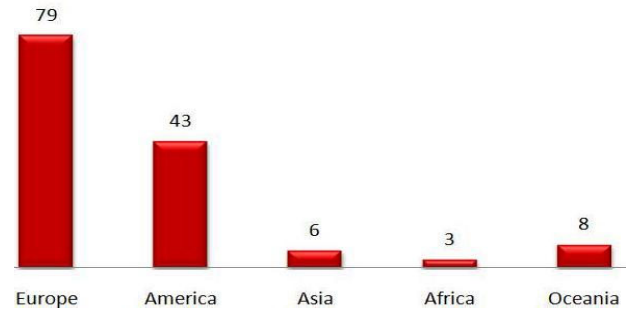


Figure 2 – Geographic distribution by continent of the addressed case studies

#### ANALYSED CASE STUDIES

In order to understand and evaluate the complex relationship between postindustrial landscape redevelopment and urban design, considering an effective analysis towards theory building, no pre-established minimum or maximum number of case studies was considered. Given that, as it was mentioned before, it was impossible, considering not only budget and time constraints of a study such as this, but also the

lack of information, to conduct a detailed analysis of all the identified projects. A subset that represented specific examples of successful industrial heritage protection, public participation and involvement and multifunctional redevelopment as catalysts of urban regeneration and economic development encouraging wider access to arts and cultural activity and facilities (elements considered of extreme relevance in postindustrial land transformation projects) was selected. In this regard six case studies were selected for analysis.

These case studies were divided into two groups considering their geographic location: one composed by European projects and the other by North American projects. This division was created during the investigation, as a result of the case study selection process, which besides the acknowledge quality of the project, considered also information availability and accessibility, *i.e.* it does not mean that one could not have selected other projects, but rather that the selected projects were the ones that better fit the research.

### EUROPEAN PRECEDENTS

Within Europe the selected projects were: Duisburg Nord – Emscher Park in Germany – (Figure 3); Parque do Tejo e do Trancão in Portugal – (Figure 4); and Westergasfabriek in The Netherlands – (Figure 5).

#### Duisburg Nord – Emscher Park

Location: Duisburg - Germany

Design Team: Latz + Partner

Typology | Use: Landscape Park

Size: 230 hectares

Budget: 15.300.000 € - budget which does not include interventions in buildings, cleanup and the construction of the underground sewer.



Figure 3 – Duisburg Nord Project Masterplan – Used by permission of Luís Loures, all rights reserved.

Duisburg Nord Park represents only a small portion of the effort, which has been made in the Ruhr River watershed to reuse old industrial areas: the International Building Exhibition (IBA – from the German Internationale Bauausstellung). In this regard, the background and the history

of the Duisburg Nord Landscape Park, is directly connected with the history of the Ruhr region, and consequently with the IBA Emscher Landscape Park redevelopment project.

Developed with the objective to recover the environmental damage left behind by the former heavy industries, while promoting urban development [24], the proposed design considered several local and regional projects that will contribute to improve environmental quality whilst protecting the industrial heritage, strengthening the image of the region as a cultural landscape [25].

In this regard, the approximately 800 square kilometers area of the Emscher Landscape Park has received international recognition for its approach considering both industrial heritage preservation and the creation of a completely new type of landscape, integrating aesthetic, economic and ecological functions. In fact, this landscape may be seen as the result of the combined effort of a multidisciplinary team of experts (architects, landscape architects, sociologists, engineers, among others) in order to achieve a set of pre-established goals:

- Cleanup one of the most polluted areas from Europe;
- Decontaminate and naturalize a fluvial network of approximately 350 kilometers;
- Reuse former industrial buildings;
- Develop several cultural and leisure routes, reorganizing rural areas and promoting the creation of cultural and artistic installations; and
- Renew former worker's neighborhoods and develop a socio cultural network.

Additionally, considering the planning strategy proposed by the IBA: *Change without Growth*, land was reused, preventing additional exploitation of greenfields, or previously undeveloped land and incorporating ecologically-sound practices.

In this regard, considering that the site was a complex matrix of buildings and landscapes, the applied design strategy intended to use the existing fragments of industry as layers that are recombined through the lens of park design. Instead of creating a completely new landscape, the proposed design strategy attempted to celebrate the area's industrial past by integrating vegetation and industry, promoting sustainable development and maintaining the spirit of the place. Instead of tearing down the industrial buildings, the project integrates them, valorising the past and creating a perfect symbiosis between the past, the present and the future landscape. This project highlights the interest in the "genius loci" rather than in the genius of the creator, a conceptual strategy applied since ancient times [26]. Even industrial wastelands can be filled with a new spirit and can be made worth living by keeping the spirit of the existing site visible. In fact, though the park was only completed recently, the proposal developed by Latz + Partner's constitutes an important legacy in the reclamation of derelict industrial sites in urban areas, not only as an individual case study but also as an element of the overall redevelopment strategy developed for the IBA Emscher Landscape Park.

Indeed, as new reclamation projects are looking to Park Duisburg Nord for inspiration it is evident that the way of looking at history, and at the world around us, is changing. By literally defining the park as a post-industrial landscape, Latz + Partner affected how people think not just about industrial landscapes but any place or space that helps to define a specific culture or cultural phenomenon.

### Parque do Tejo e do Trancão

Location: Lisbon – Portugal

Design Team: PROAP Estudos e Projectos de Arquitectura Paisagista, Lda. + Hargreaves Associates (consultant)

Typology | Use: Urban Park

Size: 90 hectares

Budget: approximately 18.500.000 €



Figure 4 – Parque Tejo-Trancão Masterplan – Used by permission of Luís Loures, all rights reserved.

Located at the oriental part of Lisbon, in an area marked by abandonment and environmental degradation at the confluence of two rivers from which it takes its name, “Parque do Tejo e do Trancão” is one of the most emblematic examples of postindustrial landscape transformation projects realized in Portugal.

Before being a park, the site, was composed by several industrial structures like a landfill, scraps, a sewage treatment plant and many obsolete industrial buildings. The construction of the railway line in the middle of the nineteenth century and the location of the port of Lisbon were determinant to the evolution of the study area as an industrial landscape.

After the set up of some lighter industries (a saw mill, a flourmill, a calico factory, and a pottery factory) the forties witnessed the establishment of the first oil companies and the construction of an abattoir and a landfill [28].

All together these industrial facilities contributed to increase the contamination levels of this landscape, which before the intervention was considered one of the most polluted areas of Lisbon [29]. This scenario - high indexes of contamination and visible degradation - coupled with the proximity of the Natural Reserve of the estuary of Tagus and the intention to develop the world exposition Expo'98 constituted decisive arguments for the intervention in this specific area. Still, as mentioned by Blokhuis and Schaefer, the basis of this project was the long existing need to redevelop the eastern part of Lisbon, an area that showed lack of occupancy and obsolescence for a long

time [30].

Based on the overall concept of the Expo 98 (The Oceans) the design strategy considered the site's problems and converted them in opportunities of artistic expression. Along with the ecological and functional sense of the proposed structure, the plan serves the parallel objective of setting a spatial organization to translate a coherent and formal unity reading the site. In fact, this land transformation project was very significant not only because it promoted the redevelopment of a highly polluted postindustrial landscape, but also because it created a precedent for the transformation of similar areas around the country. The redevelopment of this area functioned as a catalyst for urban development, influencing directly the development of the surrounding landscapes, and contributing to increase the attractiveness, and consequently the land value of this part of the city. Additionally this redevelopment constituted an example of how municipalities can work together towards common goals, and how it is possible to transform derelict sites into attractive landscapes, filling them with a new spirit and a new vitality, while increasing accessibility, services and public infrastructures, and citizens' quality of life.

However, even if it was acknowledge that the project would bring many benefits to the city -once it implicated the decontamination of the site and the creation of attractive conditions, through the construction of high quality multifunctional space where citizens could enjoy the riverfront area - not even the most optimistic previsions imagined the range of the impact this space would have in the city. Twelve years after conclusion this area is one of the most used public spaces of the Metropolitan area of Lisbon. In fact the achievements of this redevelopment project where far higher than expected, as it is possible to confirm in the idea expressed by Castel-Branco (1998, p.19) according to which even if “*the potential of the river was exciting (...) the sight and smell of the areas further inland disheartened even the most optimistic spirit*” [28]. Conversely, the proposed design was not only able to create of a new public space [30] emphasizing the potential of the proximity to the river, but also to influence urban growth, redirecting the expansion of the city and re-establishing the relationship between city and river.

### Westergasfabriek

Location: Amsterdam – Netherlands.

Design Team: Gustafson Porter Ltd. London. Mecanoo Architecten; Braaksma & Roos Architectenbureau; N2 architecten; Search; Ove Arup & Partners.

Typology | Use: Multifunctional Urban Park

Size: 14.5 hectares

Budget: 21.500.000 € - Construction + Remediation.

After approximately eighty years of activity, various uses emerged on the site of the former gas factory. In 1981 the site was rezoned as a recreation space with high potential for cultural uses, considering the existence of several historic



structures and its proximity to the city center. In this regard, the landscape was not only required to be a green space for residents but also a location for open-air and cultural events.

In 1996 the district council approved the development plan for the Westergasfabriek, in which the biggest task was to design the new park. For this reason, following the developed plan, twelve landscape architects were invited to present a general proposal to the committee, which selected five of them to take part in a competition.

From the five selected designers the commission chosen the plan entitled “Changement” by Kathryn Gustafson, which using a simple layout proposed a park that guaranteed various experiences both in space and time, fulfilling the original intention to maintain the cultural activities in the park.

Considering the characteristics of the site, the proposed design aimed to fulfill two different objectives: protecting the industrial heritage and historic structures; and creating a park that provides Amsterdam with both intimate and large scale public spaces for a range of recreational and cultural activities.

For this reason, the used design addresses holistically socio-cultural, environmental, and community issues, emphasizing technological aspects of reclamation and renewal and dispelling ideas regarding the limiting factors brought about by the pollution and toxicity of some degraded post industrial sites.

This strategy enabled the development of a design highly significant at three different but complementary levels: the first one connected to the initial perception by a variety of stakeholders, residents and city officials of the ongoing cultural, social and civic value of the site even in its former physical state; the second one related with the development of a consistent and creative vision for the site, robust but flexible over time, embracing stakeholders and local communities; and finally the third one associated to the social, special and material qualities of the envisioned site [31].

The uniqueness of the park is somehow evident in the combination of a very strong structure with a subtle detailing in which each place has a distinctive atmosphere. This was mainly achieved by using the vestiges of the partially dismantled industrial site layout, as the structure of the park [32]. As mentioned by the judges from the design competition, the concept of “*changement*” fits well within the Dutch postindustrial context, highlighting that landscape architects can work a heavily polluted site into poetic yet programmatic landscape [33]. In fact, the reuse of the restored industrial buildings, an important component of the Dutch industrial heritage, as a counterpoint to the green areas of the park, contributed to the development of a unique landscape in which the spirit of the place is evident.

Additionally, “*by representing such a clear example of the passage from conceptual design ideas to implemented built work, it stimulates both professional and public dialogue concerning the range of possibilities that may exist for such sites in the future around the world*” [31].



Figures 5 – Westergasfabriek Masterplan – Used by permission of Luís Loures, all rights reserved.

### NORTH AMERICAN PRECEDENTS

Within North America the selected projects were: Cuyahoga River Valley – Towpath trail extension in the USA (Figure 6); Don Valley Brickworks in Canada (Figure 7); and Millennium Park in the USA (Figure 8).

#### **Cuyahoga Valley, Towpath Trail Extension**

Location: Cleveland, Ohio – USA.

Design Team | Planning Commission

Commissioners: Tim McCormack, Jimmy Dimora, and Peter Jones;

Planning Director: Chris Ronayne.

Typology | Use: Multifunctional/Cultural Trail

Size: Length – 6 miles, approximately 9,7km. Trail corridor area – 16.2 hectares. Potential parkland associated with corridor – 81 hectares.

Budget: approximately 39.150.000€

Located along the U-shaped Cuyahoga River, this valley was both used for industrial transportation and recreation purposes. Although in decline due to “de-industrialization” resulting in the loss of manufacturing jobs that once were the centerpiece of its economy, the River “Flats” situated along the valley were from the mid nineteenth century to the mid twentieth a strategic site for commerce and industry in Cleveland.

The benefits of the remarkable geographic location, access to land and water transportation networks the river valley has increased the attractiveness of the site for the location of railheads, warehouses, and other industrial and commercial facilities, which converted it into one of the leading manufacturing centers in the United States.

However, when the city lost its pre-eminence as an industrial and shipping center, the businesses that thrived in the area began to decline or move away, and the economically unprofitable canal ceased functions. Nonetheless, the establishment of the Cuyahoga Valley National Recreation Area (currently Cuyahoga Valley National Park), in 1974, enabled the rediscovery of the towpath as a unit of the

National Park Service. Since then, the vast underused and often derelict open areas along the valley were considered to a variety of uses and opportunities. The redevelopment potentials of these locales alongside the Cuyahoga Flats and their reconnection to the city and the region have been recognized as of significant meaning to the future and image of this area.

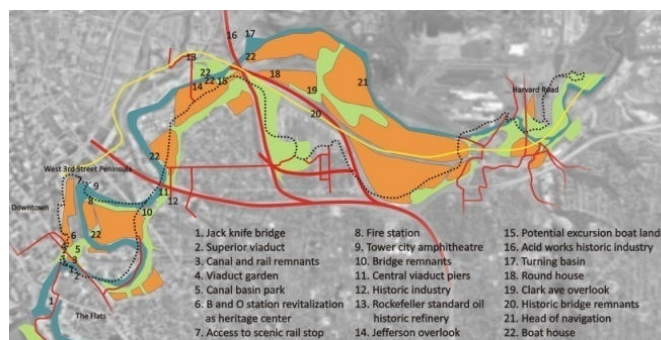


Figure 6 – Cuyahoga Valley, Towpath Trail Extension Masterplan – Used by permission of Luís Loures, all rights reserved.

By refocusing attention on the natural systems of the river valley, the recently proposed redevelopment project was based on a broad environmental and heritage regeneration strategy, which enabled the creation of a unique project. Considering refined concepts of land transformation, industrial heritage and environmental quality, the main objective of the project was to enable the development of a multifunctional landscape with several green spaces and parks, associated with existing landmarks. Additionally, considering the redevelopment of the river valley several projects have been proposed as is the case of the Towpath Trail, the Ohio & Erie Canal National Heritage Corridor, and the Flats Redevelopment Plan among others.

One of the most relevant aspects of this project, beyond its use for both transportation and recreation purposes is the broad environmental regeneration strategy applied not only in the path itself but also in the surrounding landscape. In fact, the significance of this project is somehow connected with the opportunity to refocus public and private attention on the natural systems of the river valley, given that for a long period the development strategy for the city was based mainly in achieving the better urban configuration regarding industrial production.

Additionally, the fact that the North Cuyahoga Valley had an abundance of cultural and historic assets which represent times of the past and communities of the present, provided an opportunity to explore these resources, creating an example of how this area could be redeveloped and of how industrial heritage could be used as medium for urban redevelopment. In fact, the design strategy envisioned to this project revealed that now more than ever, it is increasingly recognized that a place is built on its past and that history has a high profile in people's lives.

### Don Valley Brickworks

Location: Toronto – Canada.

Design Team: Michael Hough - Hough Stansbury Woodland Limited

Typology | Use: Ecological Public Park

Size: 16.5 hectares

Budget: approximately 2.800.000€

Located in the heart of Toronto, the Brickworks industrial site is one of Canada's most significant brick manufacturers for nearly a century. When the brick making ceased in 1989 the site received great attention considering the definition of its future use.

Its location in the Don Valley coupled with the existing industrial heritage converted it into a significant link in a chain of natural and cultural places. This scenario, inspired the development of competing visions regarding the most appropriate form and functions of the space, leading to the confrontation of two completely opposite plans: on the one hand the development of an ecologically restored urban park, and on the other hand an intensive residential development.

However, its location in the Don Valley, coupled with its history and its intrinsic characteristics converted it into a vital link in a chain of natural, cultural, industrial and historic places considering both the Don River Valley and the city of Toronto. In this regard, the site, composed by an industrial complex with eleven buildings and a quarry was both viewed as a heritage site, symbolizing cultural continuity, and as a brownfield inserted into a environmentally sensitive area, which urgently needed to be restored.

By revealing the simultaneous use of ecological restoration for water quality improvements, habitat creation, and leisure and recreational opportunities, the redevelopment project was seen as an opportunity to highlight the fact that recreational areas may be compatible with stormwater management, habitat restoration and water quality improvement. Additionally, the fact that the ecological restoration of the site might function as a magnet for people and community events, with considerable local economic and social benefits, was also considered of relevance.

The proposed design strategy aimed at a first level to heal the Don River while promoting conditions to link heritage and environmental restoration. In this regard, the developed program, while providing additional green space for Toronto's residents, enabled the creation of an inspiring balance between economic and ecological issues.

Viewed as an ongoing process of renewal and healing this project considered several key design principles based both on biological, socio-economic and political aspects, and in a thoughtful comprehension of the site.

By revealing the simultaneous use of ecological restoration for water quality improvements, habitat creation, and leisure and recreational opportunities, this redevelopment project highlights the fact that if designed appropriately, recreational areas may be compatible with stormwater management, habitat



restoration and water quality improvement.



Figure 7 – Don Valley Brickworks Project Masterplan – Used by permission of Luís Loures, all rights reserved.

In this regard, the Don River Valley Brick Works project contributed to change perception and expectations on urban open space, transforming the former vision from parks as simple lawns with shrubs and trees to landscapes where varied wildlife habitats are merged with leisure and recreation opportunities. Furthermore, the ecological based redevelopment of this former industrial landscape contributed to highlight the fact that pleasant surprises might arise by working with natural processes instead of trying to control them.

### Millennium Park

Location: Chicago, Illinois – USA.

Design Team:

Landscape Architecture - Gustafson Guthrie Nichol Ltd.; Harley Ellis Devereaux; Piet Oudolf; Robert Israel; Site Design Group; and Terry Guen Design Associates, inc..

Architecture, Art and Design – Edward K. Ulhir (project coordinator); Anish Kapoor; Gehry partners, LLP; Hammond Beeby Rupert Ainge inc.; Jaume Plensa and Krueck & Sexton Architects; John Zils; Muller & Muller, Ltd.; Renzo Piano.

Typology | Use: Multifunctional Urban Park

Size: 9.9 hectares

Budget: approximately 400.000.000€

Located in the Northwest corner of the Grand Park the place which now houses the Millennium Park was formerly used as a rail yard. This park represents an unprecedented combination of architecture, art and landscape design in a single public project. However the development of this park was only

possible due to a partnership established with the Chicago's generous philanthropic community, whose donations became an economic and cultural dynamo to revitalize the area.

The used design strategy was based in a strong interdisciplinary approach in which architecture, landscape and art were viewed as complementary elements. In this regard, the proposed design considered the development of a multifunctional cultural venue composed by several installations, created by well-known artists and designers. In fact the Millennium Park represents an unprecedented combination of architecture, art, and landscape design in a single public project.



Figure 8 – Millennium Park Project Masterplan – Used by permission of Luís Loures, all rights reserved.

Indeed, multifunctionality is one of the most significant strength of the Park. It offers a complex variety of choices for every visitor, whether one desires music, theater, opera, public art, avant-garde architecture, sport and recreational activities, promenading, etc. For this reason this site has been generally considered as a value added to the city, given not only its central location but also its ability to function both as an informal recreation space and as a major new events venue both by day and night.

By creating a space where people could enjoy themselves, merging nature and culture with a significant collection of artistic masterpieces, which quite literally represent the city and its people, Millennium Park had fostered a considerable sense of belonging in the citizens of Chicago. In fact it was this sense of belonging that enabled a unique public-private partnership between the city of Chicago and several generous



private supporters.

As mentioned by [34], by addressing both historical and contemporary issues, the strategy used to Millennium Park, captured not only the attention of private donors which contributed money for park construction, especially for public art and architectural features, but also of the general public, who saw the park as a destination for both locals and tourists. In fact, the fund raising strategy constitutes both one of the most important elements and lessons learned with the Millennium Park project, and one of the components from the redevelopment strategy which would be harder to emulate in any other project, given that little cities in the world have such a philanthropic community, willing to raise 120 million dollars.

By creating a design proposal that accommodates public use at two different scales: the pedestrian traffic moving between Grant Park and downtown during special cultural and social events, and the groups of people that visit the park daily, designers enabled the creation of an important single massive architectural construction with an intense concentration of cultural assets that will attract visitors who will pay to park, eat, be entertained and enlightened, etc. [34]

The fact that the park design itself, constituted an opportunity to address a series of important questions regarding urban landscape redevelopment, sustainability and feasibility, created a momentum for designers generally recognized as innovative to think even “outer of the box”. This scenario enabled the development of a park, in which several ideas and architectural styles were integrated in a single design that responds both to contemporary needs and desires and to idea of nature in the city as an antidote for urban problems.

The uniqueness and singularity of this project was widely recognized since its construction, as it is attested by the more than 30 awards it has been given till 2005.

#### IDENTIFIED PLANNING AND DESIGN PRINCIPLES

Considering the types of analysis inherent to the method used throughout this research, several sources of evidence were utilized, in order to acquire as many data/information as possible. In this regard different frameworks were used, being applied, selectively, to the following tasks:

- Literature review |archival research (project records, books, articles, websites, etc.);
- Interviewing key participants (e.g. the designer or the project manager);
- Project analysis - considering several design and planning issues, as the program, the design strategy, the framework used, etc.;
- Site visit – performed in order to feel the spirit of the place, the way people use it, enabling interviewing with site users.

Concerning the different types of data collected throughout the analysis, 37 heuristically driven design and planning principles were identified (table 1).

Table 1- Planning and design principles identified on the 6 analyzed case studies

1 Duisburg Nord; 2 Tejo Trancão; 3 Westergasfabriek; 4 Cleveland Valley; 5 Don River Brickworks; 6 Millennium Park

	1	2	3	4	5	6
1 Accessibility -		X	X	X	X	X
2 Adaptability and Flexibility	X		X	X		
3 Attraction		X	X			X
4 Balance and Synergy	X		X	X	X	
5 Character and Context	X	X	X	X	X	X
6 Comfort		X				X
7 Compactness and Density				X	X	
8 Compatibility	X		X			
9 Connectivity	X	X	X	X		X
10 Design for Change			X		X	
11 Distinctiveness and Identity	X	X	X	X	X	X
12 Dynamic Context		X		X	X	
13 Ease of Movement	X	X		X	X	X
14 Environmental Education and Capital		X			X	X
15 Equity				X		
16 <i>Genius Loci</i>	X		X	X	X	
17 Holistic design			X	X		X
18 Industrial Heritage	X		X	X	X	
19 Innovation and Creativity	X	X				X
20 Landmarks	X		X	X	X	X
21 Legibility	X	X		X		X
22 Multifunctionality and Diversity	X	X	X	X		X
23 Partnerships				X	X	X
24 Places for People	X	X	X			X
25 Public Participation and Stakeholder Involvement	X		X	X	X	
26 Quality Design		X	X			
27 Resilience	X	X	X			X
28 Resource Efficiency	X					
29 Reuse	X		X	X	X	
30 Safety and Security		X				X
31 Stigma and Value	X			X		X
32 Sustainability		X		X	X	X
33 Transportation network		X	X	X		X
34 Uniqueness and Cultural Significance	X		X	X	X	X
35 Viability	X	X				X
36 Visual and Functional Continuity	X	X	X		X	X
37 Walkability	X	X	X	X	X	X

The identification of the planning and design principles was performed by using an approach similar to the one utilized by Lang (1994) to identify normative theories used in planning

and design, and described according to the ideas and definitions expressed in the literature, which whenever necessary were gauged with the design team, in order to acquire a more precise and objective information regarding the definition and the goals of each principle. As it is possible to notice on Table 1, some of the identified planning and design principles were used in various analyzed case studies.

### III. CONCLUDING REMARKS

The present research put forward noteworthy ideas regarding the importance of postindustrial land transformation to the overall land management and urban redevelopment processes, namely that:

- Postindustrial landscapes, when reintegrated into the urban context, represent a valuable resource to society at different levels, improving landscape value and livability and contributing to increase life's quality, while diverting growth toward extant urban areas. This approach reduces sprawl and reinstates natural processes and functions, being considered a proficient tool to contribute to sustainable development.
- The analysis and recovery of postindustrial landscapes constitutes an opportunity that tends to be lost in time, considering both the lack of efficacy of the existing land use planning tools to protect these areas, and the growing urban pressure that, especially in pleasant and valuable landscapes, have led to the disappearance of various industrial infrastructures with high heritage value, increasing the need to protect and redevelop these areas, considering artistic, historical, and use value.

Besides highlighting the benefits that may arise from the redevelopment of postindustrial areas, the present research facilitated also the identification of a set of planning and design principles that have been successfully used in particular redevelopment projects, enabling the creation of a common ground for postindustrial redevelopment, thus revealing the significance of the proposed methodology, i.e. case study research, both theoretically and practically.

To conclude it is relevant to notice that the used approach enabled the creation of a set of planning and design principles connected with landscape planning and design that respects site and context; and that the application of the design principles, presented in this article, in the reclamation of postindustrial landscapes though potentially beneficial, represents just a planning and design possibility that may contribute to increase the sustainability of the design, since several other, as valid planning options may be proposed.

Moreover, one should notice that the application of these principles does not constitute a *sine qua non* equation to the success of any project. Site and context research, analysis and synthesis must be performed, once "no size fits all". Additionally as mentioned by Welsh Development Agency one must acknowledge that "*the designer's true role is to better the things that surround us. Better them in terms of function, appearance, cost and material: but better them also in terms of aspiration and desire, in the dream of how life might be*". This is to say that regardless of the relevance of the application

of the identified planning and design principles in the redevelopment proposals site specificity and designer creativity continue to be crucial elements of the overall design process.

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