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Urban recycling of derelict industrial sites. Analysis of socio-economic redevelopment of post-industrial districts.

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Resume

In the reclamation of derelict industrial areas it is essential to define the contributions of the urban landscape components, once different approaches to these components, may give different ways to reclaim this landscapes, allowing the use of different design strategies. To specify the different design strategies that may be used in the reclamation of derelict industrial areas three case studies will be presented, each one related with a different strategy. Based on the applied strategy, this thesis will analyze the three case studies: Industrial heritage in Manchester; Distillery District in Toronto; Industrial heritage in Terrassa.

In these projects it was found that the adopted design strategies are beneficial to the society, economy and the environment respecting the models of urban recycling. Through the case studies, in this thesis will be present models of financing, method of protecting the industrial heritage and the impact on the environment, economy and society. In the projects specified above it was found that the adopted design strategies minimize the environmental impact, respecting the cultural heritage, improve social conditions and contribute to economic growth.

The interest for this thesis is to headline the importance of preserving the industrial heritage and the different methods of its utilization. The research was carried out with the intension to show the variety of possibilities for use of formal industrial districts. The intension was to presented different approaches to resolving the problems of derelict industrial sites and the process of transformation of abandoned and endangered industrial heritage. As an example of good recycling process it will be present cases of reutilization of site and district to cultural, commercial and residential purpose.

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Chapter I: Introduction

1.1 General Introduction

During the turbulent history of the last century, many cities had periods of growth and decline, and all that followed the rise and fall of industrial development. Constant development and changes in the needs of industrial production and the widespread crisis of numerous industrial sectors contributed to the appearance of derelict industrial areas and facilities. Abandoned industrial areas are often located in the central city zone and prevent the balanced development of the city.

From the national to the local level there is a decisive attitude to sustainable development and a constant attempt to compromise and reinterpret the concept to support the aim of economic development. A sustainable city is one that makes use of new forms of citizen participation, implements sustainable transport and mobility concepts, promotes environmentally sound building measures, has an ecological energy supply and minimizes energy consumption, designs socially oriented living spaces on brownfield sites, and at the same time allows for accessibility for different social groups. The recycling projects of derelict industrial areas studied on the present thesis follow design principles that promote sustainability, reduce negative environmental impacts, and foment economic prosperity, social inclusion and a better quality of life.

In the reclamation of derelict industrial areas it is essential to define the contributions of the urban landscape components, once different approaches to these components, may give different ways to reclaim this landscapes, allowing the use of different design strategies. To specify the different design strategies that may be used in the reclamation of derelict industrial areas three case studies will be presented, each one related with a different strategy. Based on the applied strategy, this thesis will analyze the three case studies:

- Industrial heritage in Manchester;
- Distillery District in Toronto;
- Industrial heritage in Terrassa;

In these projects it was found that the adopted design strategies are beneficial to the society, economy and the environment respecting the models of urban recycling. Through the case studies, in this thesis will be present models of financing, method of protecting the industrial heritage and the impact on the environment, economy and society. In the projects specified above it was found that the adopted design strategies minimize the environmental impact, respecting the cultural heritage, improve social conditions and contribute to economic growth.

The selection of case studies for this thesis was depending of dominant character of strategy applied in brownfield intervention. In the first case of *Distillery District* in Toronto in was found out that the specific interest and goals for intervention was economic and cultural prosperity of the formal industrial district. In the second case of Manchester Heritage, with special reference to *Ancoats Urban Village*, dominant strategy is on social and cultural reutilization of industrial heritage. Also, as a positive example of revitalization of these derelicts sites was reconstruction for residential purposes. In the third case of *Terrassa Industrial Heritage* it was performed the reconstruction and redevelopment for mostly public and governmental uses. The case study of Terrassa have an additional form of research, the survey, in order to gather information on the impact of urban intervention on industrial heritage in the city.

The interest for this thesis is to headline the importance of preserving the industrial heritage and the different methods of its utilization. The research was carried out with the intension to show the variety of possibilities for use of formal industrial districts. The intension was to presented different approaches to resolving the problems of derelict industrial sites and the process of transformation of abandoned and endangered industrial heritage. As an example of good recycling process it will be present cases of reutilization of site and district to cultural, commercial and residential purpose.

1.2 Premise

The premise of the thesis is that the urban recycling of derelict industrial areas is indispensable for sustainable district development and conservation of industrial heritage and at the same time marks a new commitment to the transformation of abandoned industrial sites to new cultural, economic and environmental uses. The transformation of derelict industrial sites into public spaces represents a significant enhancement to the quality of life, an important raise of use of land and recognition of the great potential for economic development of the place.

1.3 Objectives

The field of the study of present thesis is a research of possible strategies that might be used to reclaim derelict industrial sites in urban areas using the models of urban recycling. Each strategy is related to different landscape characters: the socio-cultural, the economic and the environmental. The objective of this thesis is to analyze the design strategies used in the reclamation of derelict industrial sites using three representative different case studies: Industrial heritage in Manchester, Distillery District in Toronto and Industrial heritage in Terrassa.

The thesis will explore the brownfield challenge in the contemporary post-industrial city and its potential to formulate a more sustainable urban design. With this as a basis it develops a framework based on psychical analysis of the sites and districts, before and after the intervention. In this contest the thesis intents to clearly point out what the reintegration and redevelopment of derelict industrial sites into the social, economic and environmental context of the city – what is refers to as brownfield interventions – actually means to the city or district.

Some specific line of investigation of the thesis will be to define the concept of land recycling, analysis of brownfield intervention sustainability, opportunities of sustainability and social, economic and environmental benefit of recycled sites, model of use the industrial heritage and its potential as economic development, and importance of combining different economic strategies to redevelop derelict industrial sites.

1.4 Methodology

The investigation will include the analysis of basic and specific objectives and analysis of economic policy related to the three case studies. The research methods is comprised of literature reviews, comparative and qualitative analyses and survey research related to the socio-economic redevelopment process of former industrial districts.

Methodology will consist of three parts: an introductory theoretical part with theoretical emphasis of urban recycling process and development of society and economy; the research part thought specific case studies with implementation of economic and social strategies; and the evaluation part with conclusions. It will be research theoretical literature focusing on urban city recycling and ways of its implementation in the field of industrial heritage.

The investigation was included:

- Theoretical review: Concepts of land recycling, deindustrialization, Brownfield interventions, industrial heritage, etc.
- Analysis of case studies of Manchester and Toronto by collecting the information from online references and literature.
- Analysis of case study of Terrassa by collecting the information “on the site”, used the literature of City municipality of Terrassa.
- The investigation by survey form. The survey consisted of fields related to three groups: importance of historical heritage and its benefit to district, social and economic development of the place. The surveys was developed and applied to public, private and social organizations, people from the neighborhood of Terrassa which aim to value historical, economic and social elements of the Industrial Heritage of the city.
- Analysis and valuation of three case studies and the results of the transformation that left to site, district and city.

1.5 Outline of the dissertation

This document is organized in five chapters. The current chapter begins with problem statement, followed by personal interest for the theme, the premise, objectives and research methods. Chapter two presents a concept and definitions of land recycling, and its connection with sustainable development. Third chapter define urban recycling process of former industrial site, and defines and evaluates the brownfield interventions. The fourth chapter concentrates on economic and social development of recycled site. In this chapter it will be define the concept of Industrial Heritage and possibilities of development of industrial tourism. The fifth chapter analyzes three specific cases, which reconstruction respects all principles of urban and land recycling according to the objectives of this thesis. Whit in the analysis it was studied the urban and economic policies and management process which carried out the brownfield intervention. In the research it was conducted comparative analysis of the three examples of applied economic policies as its impacts on site, district and city. Finally, the last chapter draws some conclusions and recommendations of this study.

Chapter II: Land recycling

2.1 Concept of land recycling

Recycling, in its literal meaning, is the procedure of making unserviceable products in into new remanufactured products. Applied to the urban context it would mean the revival of before beneficial and productive land, now abandoned and derelict, into new useful and profitable ground. The main motive of this thesis is the implementation of recycling process in the urban context of the city on industrial derelict ground. Urban recycling is a process of physical, spiritual, social, cultural transformation of urban areas, buildings or whole old towns in order to save the memory of the cities and improve the level of their urban culture.

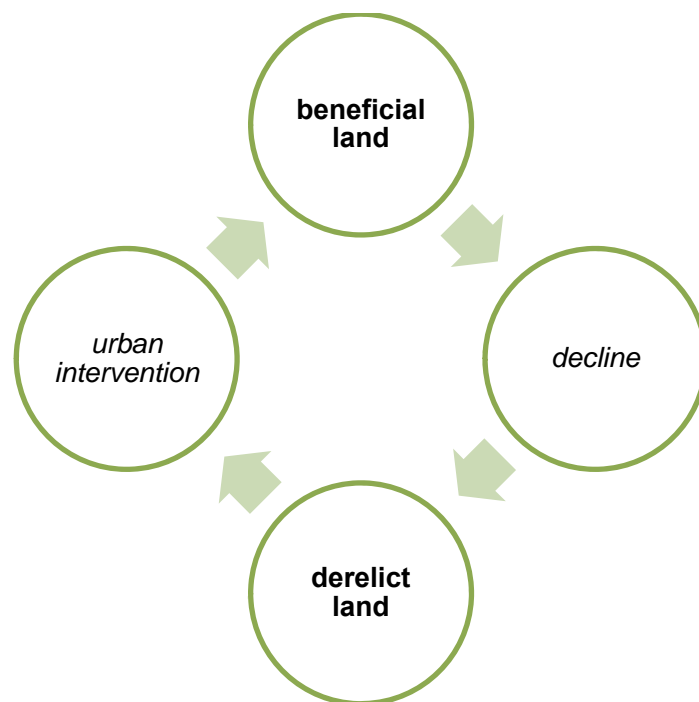


Figure 1 - Recycling process of urban land (own source)

Land recycling aims to ensure the reuse of contaminated and abandon land as part of new developments, which means cleaning up contaminated properties, reuse and making new use of derelict land. Final uses from land recycling may include: mixed-use, residential, commercial, or industrial developments and public open space such as urban open space use by urban parks, community gardens or larger open space.

Vacant, abandoned, and contaminated properties in urban areas can be both an eyesore and an opportunity. Land recycling is the reuse of underused properties for redevelopment or repurposing. In an urban residential neighborhood, vacant land decreases property values and scares off development for both the actual site and the surrounding neighborhood. But vacant land can also provide opportunities for neighborhood transformation.

According to Thomas¹ *“the term ‘land recycling’ has gained favor in recent times among land use planners; whereas economic development corporations functioning as individual entities and in some cases as departments of local governments seek to turn ‘brownfields into goldfields’*. Urban regeneration and sustainable development emerged as parallel strands of modern urban policy, with greater emphasis given to achieving urban regeneration, especially economic regeneration, than to sustainability (Couch and Dennemann, 2000).

Land recycling is the most significant environmental innovation developed in the last decade - an innovation pioneered by states in response to unrealistic urban policies that actually encourage the abandonment of contaminated properties. Returning properties to productive reuse free from environmental liabilities has not only obvious environmental benefits but economic benefits as well. And by encouraging businesses to locate on old industrial sites in towns and cities, land recycling may also turn out to be a major factor in reducing sprawl development and preserving open space and farmland (Thomas, 1991).

In an industrialized community such as Europe, much of the land used for development has a history of previous uses. The reuse or recycling of land is dependent on the previous use and the state of the land at the time of the proposed development. That state can be classed in physical, chemical, or biological terms, and is often so poor that it renders the land unsuitable for continued use or reuse without major land engineering works. The state of urban land in Europe has declined as a result of economic and industrial trends which have rendered an increasing area of land classified as poor quality (Thomas, 1991).

¹ Thomas M.R., A GIS based decision support system for brownfield redevelopment. *Landscape and Urban Planning*, 58: 7-23, 2002.

Based on the investigation program run by the group of professors from Massachusetts Institute of Technology², the objectives of land recycling are:

- Improve the environment and human health,
- Remove stigma associated with environmental contamination,
- Reverse neighborhood un-employment and blight,
- Increase property values and property tax revenues,
- Achieve significant savings in infrastructure investment, due to using under-utilized existing infrastructure,
- Stimulate economic growth,
- Create environmental jobs,
- Increase land availability and reduce pressure to develop greenfield sites.

Sustainable development is the key to successful site recycling. Redirecting population growth and growth of businesses to already urbanized areas is integral to fostering sustainable communities. Applying sustainable principles to land use and growth management requires that growth be redirected from scattered fringe areas back to our urban cores, where people, services and infrastructure already exist. Building up our urban areas positively increases population density, providing the critical mass to support local services and public institutions. Land recycling provides opportunities for urban renewal and to build truly livable communities: efficient, compact, vibrant urban neighborhoods integrated with public transit systems, which offer a mix of uses as well as affordable housing.

Recycling process in a closed circuit process and as such is the best for sustainable development. The next pages define the term Sustainable Development and explaining its importance for recycling process of derelict industrial land.

² Karen Polenske, Li Xin, Chen Zhiyu, James Hamilton, *Recycling Industrial Land for Urban Redevelopment*, Department of Urban Studies and Planning, Massachusetts Institute of Technology, publish in Workshop on Global Innovations, World Bank, 2009

2.2 Sustainable development

The definition for sustainable development established by the Brundtland Commission in 1987 emphasizes meeting human needs in a manner that respects intergenerational responsibility. In a parallel way, the definition from the World Conservation Union (International Union for the Conservation of Nature and Natural Resources) emphasizes improving the quality of human life while protecting the Earth's capacity for regeneration. The two definitions together provide a good understanding of the meaning of sustainable development as benefiting both people and ecosystems³. From this, a sustainable urban design can be understood as that which meets current human needs providing quality of life without compromising nature and natural resources; thus without compromising the quality of life of future generations. For instance, Edwards suggests the remodeling of former industrial areas not only reduces the pressure on the green corridors, it also offers the possibility to bring residential areas nearer to working, leisure and educational areas, contributing to a regeneration of civic pride and involving an impulse for the restoration of the City, an increasingly important aspect in Post-industrial Reconstruction (Edwards, 2004).

“The redevelopment of derelict industrial areas has received a lot of attention in the past few years and has become a major landscape related problem” (De Sousa, 2002, 19: 297–309). Since the mid-1980s, policy makers and planners have been paying significantly more attention to sustainable development and improve the quality of life in urban areas. The redevelopment of derelict brownfield sites, which are often located in the core sections of urban areas or sites of high ecological value as rivers are prime targets for urban revitalization (Brooks, 2006).

Recently many landscape architects have begun to look at the landscape not only as a setting in which to intervene, inserting an indefinite variety of objects, but as a tool through which to design and manipulate complex material. The understanding of the temporal and dynamic character of any landscape and design solutions, as well as a design process that facilitates a fair representation of the existing attitudes towards and expectations of the site, is paramount for success (Langhorst, 2004).

³ UNESCO, UN Decade for Education for Sustainable Development, (2005-2014)

The landscape is transformed into something different, a place sensitive to different transformations, which records the movements and events that cross it. Artists were the first to begin to transform this sensitive surface, seeking a type of formal assimilation for everyday use. Architects, as a result, attempt to define, using the same approach, a method capable of reacting and integrating the life of man and the spaces that protect him (Thomas, 2001).

In order to create a successful and sustainable reclamation design it is important to recognize and interpret the historic and cultural significance of the landscape and to understand how *“landscape ecology and design can invent alternative forms of relationships between people, place, and cosmos so that landscape architectural projects become more about invention and programs rather merely corrective measures of restoration”* (Corner, 1996, pp: 82-83).

Any attempt to define principles for good design must embody the principles of sustainable development. Building design, landscape design and urban design must be brought together to deliver a more integrated, skilled and effective design process. According to Punter⁴ landscape reclamation design should integrate five fundamental principles: protect and conserve quality landscapes; develop a clear vision and strategy for an area; apply collaborative design principles; allow resources for long-term aftercare of new landscapes; enhance biodiversity, social stability and economic development (Punter, 2002).

According to Punter the industrial building reclamation design should integrate similar five fundamental principles: (Punter, 2002):

- perform well the functions for which they are redesigned;
- be long lasting and adaptable to new uses;
- respond well to their surroundings and enhance their context;
- have a visual coherence and create ‘delight’ for users and passers-by;
- be sustainable – nonpolluting, energy efficient, easily accessible and have a minimal environmental impact.

⁴ Punter, J., *The Welsh Development Agency Design Guide – Its role in raising standards in Wales*. Welsh Development Agency, Cardiff, 2002.

Sustainable development is positive socioeconomic change that does not undermine the ecological and social systems upon which community and society are dependent. Its successful implementation requires integrated planning, and social learning processes; its political viability depends on the full support of the people it affects through their governments, their social institutions, and their private activities.

Abandoned, idled, and vacant properties are often located in former industrial and commercial areas, typically in urban and historically disadvantaged areas. These sites can negatively impacting on social, cultural and economic development. The failure to redevelop brownfields in particular translates into potentially loss of economic and housing benefits that can come from appropriate redevelopment. Urban recycling process can revitalize those sites and bring than to new productive use and allow social, economic and environmental revitalization.

2.3 Benefits of recycling derelict site

Recycled derelict urban land encourages growth of businesses and services helping to break up concentrations of poverty, creating new jobs and brings economic improvement thought stimulating additional private investment. An abandoned, but good situated, factory site can be redeveloped into a new mixed-use development with a commercial facilities, housing, public and cultural buildings etc. The addition of neighborhood-serving retail, affordable housing, or a public park in a disadvantaged community can boost local spirit and improve overall quality of life. According to the “Land Recycling team” at the Department of Urban Studies and Planning, at Massachusetts Institute of Technology, the benefits of recycled site are divided into three groups (Karen, Li, Chen, James, 2009):

Economic benefits:

- To attract investment;
- To increase tax revenue;
- To improve the City's competitiveness;
- To increase the value of real property;
- To improve use efficiency of city infrastructure and city land resources;

Social benefits:

- To increase job opportunities;
- To increase the affordability of residents housing;
- To improve the quality of life of residents;
- To mitigate human health risks;

Environmental benefits:

- To improve the quality of the urban environment;
- To reduce greenhouse gas emissions;
- To take urban development pressure off of green-space;

In the past, industry was often abandoned without performing the appropriate reclamation work. Today, with the increased ability of perturbation that affect large portions of the landscape, there is a deep public concern that industry should not be abandoned without performing any reclamation work. New design strategies to reclaim derelict industrial sites have been devised in recent years, focusing on the sustainability, quality and multi-functionality of the space, with attention to historic, socio-economic and cultural aspects (Loures, Panagopoulos, 2007).

Sustainability involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. Like other natural resources, land represents a shared investment that should be reused and recycled, rather than consumed and abandoned after use. By encouraging the recycling rather than the consumption of land, land recycling promotes smart growth and responsible, sustainable patterns of development. As most brownfields and other abandoned sites are typically situated in urban areas, they tap into existing nearby infrastructure, limiting the need to build new roads, gridlines, and amenities, thereby reducing further land consumption. Each infill development prevents sprawl into open space, forests and agricultural land, preserving acres of undeveloped land (Urban Land Institute, 2012)

Certainly one of the most important benefits of recycled urban site is a preventing and reducing urban sprawl and unplanned developments. The term urban sprawl generally has negative connotations due to the health, environmental and cultural issues associated with the phrase. “Urban sprawl” or “suburban sprawl” is a multifaceted concept centered on the expansion of car-dependent and low-density development. Urban sprawl development scatters housing, public transit, jobs and other amenities farther apart, demanding more frequent use of cars for travel and produces a range of health and environmental problems such as air pollution and increased greenhouse gas emissions, and traffic jams. (Urban Land Institute, 2012)

Land recycling offers an alternative to sprawl development. It reuses vital infrastructure and public resources and creates compact, well organized urban environments that reduce dependence of vehicles. Rebuilding in urban neighborhoods generates reinvestment in vibrant economic and cultural centers, rather than drawing away much needed resources. Compact, urban development through land recycling is essential to sustainable development and it is a key to managing rapid population growth (Thomas, 1991).

*“Canada identifies their potential for redevelopment and bringing economic benefits to local communities, and envisions the transformation of its brownfields into economically productive, environmentally healthy and socially vibrant centers of community life, through the coordinated efforts of all levels of government, the private sector and community organizations”.*⁵

The United States Environmental protection Agency (USEPA) argues the nature, context, and perspective of the challenges confronting brownfields practitioners demand a new approach based on an ecologically, economically, and socially sustainable brownfield redevelopment. An important point in their argument is that brownfields redevelopers can avoid re-creating Brownfields and continuing their legacy. The EPA suggests this can be achieved by integrating the concepts of sustainable development, community involvement, risk management, and collaborative project teams with brownfields redevelopment (United States Environmental Protection Agency, 1999).

⁵ National Round Table on the Environment and the Economy, *Cleaning up the past building the future: a national Brownfield redevelopment strategy for Canada*, National Brownfield Redevelopment Strategy Task Force, Ottawa, 2003

“Working in both Canada and in the US, the National Brownfield Association states in its guiding principles that the responsible redevelopment and productive reuse of brownfields properties are in the best interests of society for a number of environmental, economic, and social reasons”⁶.

The United Kingdom takes the vision to action through a policy that seeks to encourage a regeneration of brownfield sites / previously developed land in order to promote (The National Brownfield Association, 2013):

- the economic and social regeneration of the surrounding areas;
- the environmental improvement of the sites themselves;
- the reduction in “development pressure” on greenfield sites.

These aims are reflected in the headline land-use policy objective for the national Government in the UK, which is to promote a sustainable pattern of physical development and land and property use in cities, towns and the countryside. This objective is backed up by specific Public Service Agreement targets for: 60% of new housing to be provided on previously developed land or through conversion of existing buildings; and, brownfield land to be reclaimed at a rate of over 1,100 hectares per annum by 2004, reclaiming 5% of current brownfield land by 2004 and 17% by 2010. This land use objective is also specifically linked to a further objective to enhance sustainable economic development and social cohesion through integrated regional and local action, including the promotion of an urban renaissance. The UK Government target by which 60% of all new houses be built on brownfield sites by 2008, was designed to relieve the pressure on Greenfield sites and preserve the countryside. Data released by the DTLR in May 2002 indicate the target is currently being exceeded with 61% of new housing being built on brownfield sites (EUGRIS, 2013)

⁶ The National Brownfield Association, www.brownfieldassociation.org

2.4 Challenges to land recycling

It is clear that the land recycling has great economic, social and environmental benefits but without the right tools and knowledge, redevelopment of the land can produce certain challenges. Obstacles to reuse land may include difficult to obtain funding and increased scrutiny. These can particularly impede projects on brownfields.

Factors that hinder land recycling include (Center for Creative Land Recycling, 2013):

- market factors;
- environmental-liability risks;
- uncertainty and cost;
- complicated/confusing regulatory requirements;
- difficulty in obtaining project financing;
- the lure of greenfields;

In present case of thesis investigation, industrial derelict sites are located in distressed urban areas concerns arise about crime and safety. It have a great affect to market factors and frequently pull development to open land near traditionally desirable communities and away from urban infill sites. Brownfields site must compete with attractive, undeveloped suburban and rural land, also called greenfield land. *“Every developer knows that in real estate only three things matter: location, location, location. Because idled and underused infill sites are often located in distressed urban areas concerns arise about crime, safety, and access to quality education and services. These and other market factors frequently pull development to open land near traditionally desirable communities and away from urban infill sites”⁷*. Greenfield land is undeveloped land in a city or rural area either used for agriculture or landscape design. These areas of land are usually agricultural and being considered for urban development (Urban Land Institute, 2012). When considering the real or perceived risks and costs of land recycling, a greenfield development may seem more attractive and economically sensible as the immediate costs are typically less than developing on an derelict site.

⁷ Center for Creative Land Recycling, Available at: <http://www.cclr.org/101/#/challenges>

Competition with greenfield can be difficult since the initial investment to prepare the ground for the construction department is lower compared to brownfield site. However, it is important to consider the long-term economic gain of land recycling and the added social and environmental rewards of sustainable development (Center for Creative Land Recycling, 2013). "Brownfields and infill sites must compete with attractive, undeveloped suburban and rural land, also called greenfields. When considering the real or perceived risks and costs of land recycling, a greenfield development may seem more economically sensible as the immediate costs are typically less than developing on an infill or brownfield site."⁸.

Assessing whether or not a site is contaminated can be a costly process that deters land reuse. Potential purchasers are often unwilling or unable to risk an investment in a site assessment for a property that may require cleanup they cannot afford. Even if a site has been purchased, concerns over cleanup costs may further stall redevelopment. Uncertainty over time, cost or a high price for cleanup leaves many brownfield sites in development oblivion (Brownfield Redevelopment: Stakeholders Report, 2004).

The potentially complex process of successfully redeveloping a derelict site can challenge land recycling interest and proposals. Understanding and complying with legal and regulatory requirements of the county can be daunting for some property owners and developers. Although recent efforts in some country's laws provide some liability relief to new purchasers of contaminated properties, the law remains very complex and many state laws still have strict liability covering real property (Brownfield Redevelopment: Stakeholders Report, 2004).

⁸ *Center for Creative Land Recycling*, Available at: <http://www.cclr.org/101/#/challenges>

Chapter III: Urban recycling process of derelict industrial sites

Present chapter of the thesis covers the entire process of occurrence of derelict land on former industrial site and its process of recovery and transformation to new use. With the loss of industrial production activities starts a process of deindustrialization which leads to the appearance of derelict sites. Within the theoretical review the chapter will indicate to all relevant concepts of derelict sites. Abandoned and contaminated environment appeared on this former industrial ground, which is not only economic, and health problem but also a social trouble due to the occurrence of abandoned places in the urban environment. The solution of problem is in the process of “brownfield intervention”, which final goal is economic, environmental and social improvement. The entire process could be presented in the following figure 2. Through this chapter it will be attempt to define the process of brownfield intervention and redevelopment and its possible goals for intervention. The intension is, also, to demonstrate the methods to evaluate the redevelopment process, based on the fact that each case is very unique and depends on many factors.

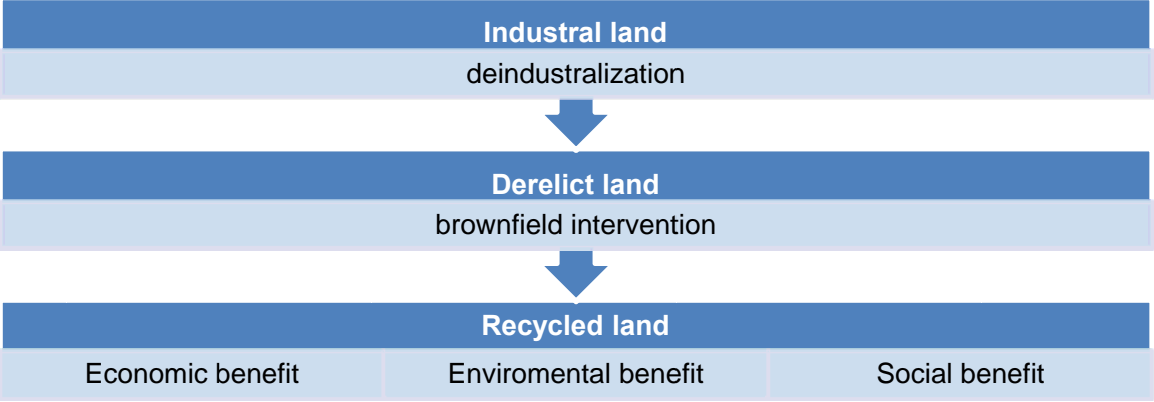


Figure 2 - Urban recycling process of derelict industrial site (own source)

3.1 Deindustrialization

Industry is a human endeavor that is practiced in both developed and undeveloped countries. The effects of the globalization of industry over the past decades has had a profound effect on the traditional industrial areas all over the world and produced a vast array of obsolete industrial facilities and the various impacts, which are generated from them. The formal products of the modernist movement have become obsolete, forcing this generation to decide on the disposition of the last generation's industrial environment.

Deindustrialization is a term that means the opposite process of industrialization. It is a process of social and economic change caused by the removal or reduction of industrial capacity or activity in a city, country or region, of all types of industries but especially large industrial complexes such as heavy industry or manufacturing industry. This process termed “deindustrialization” created severe economic, social and ecological repercussions. The industrial era left behind a legacy of derelict landscapes. Urban core areas became economically disadvantaged, socially distressed and environmentally degraded through industrial contamination and process decline (Thomas, Luis, 2007).

There are many theories that explain or predict deindustrialization. Rowthorn and Wells (1987) distinguish between deindustrialization explanations that see it as a positive process of full growth of the economy, and those that associate deindustrialization with negative factors like bad economic performance. They suggest deindustrialization may be both an effect and a cause of poor economic performance.

Institutional arrangements have also contributed to deindustrialization such as economic restructuring. With breakthroughs in transportation, communication and information technology, a globalized economy that encouraged foreign direct investment, capital mobility and labor migration, and new economic theory's emphasis on specialized factor endowments, manufacturing moved to lower-cost sites and in its place service sector and financial agglomerations concentrated in urban areas (Bluestone & Harrison 1982, Logan & Swanstrom 1990).

Pitelis and Antonakis (2003) suggest that, to the extent that manufacturing is characterized by higher productivity, this leads, all other things being equal, to a reduction in relative cost of manufacturing products, thus a reduction in the relative share of manufacturing. Additionally, to the extent that manufacturing firms downsize through, e.g., outsourcing, contracting out, etc., this reduces manufacturing share without negatively influencing the economy. Actually it potentially has positive effects, provided such actions increase firm productivity and performance.

George Reisman (2002) identified inflation as a contributor to deindustrialization. In his analysis, the process of fiat money inflation deforms the economic calculations necessary to operate capital-intensive manufacturing enterprises, and makes the investments necessary for sustaining the operations of such enterprises unprofitable.

The contemporaneous city results from a long transition begun in the end of the nineteenth century. This period was influenced by the accumulation of different visions, different urban models and by significant changes in consumption and production patterns. Those changes were so fast and alert many city planners. Patrick Geddes in his *Cities in Evolution* and Ebenezer Howard in his *Garden Cities of Tomorrow*, each published in the beginning of the twentieth century, sensed that the Industrial Revolution was going to modify the sense of balance of village around a commons (Sieverts, 2003).

During this period almost all representations of the European capitals tried to demonstrate the relevance of the modern culture, emphasizing their industrial complexes, commercial ports and railway stations. Throughout this time cities grew in proportion to the scale of their industries, reason why the loss of industry without a comparable shift to new forms of economic activity eroded the tax base and caused a “ballooned public sector”⁹. The end of the twentieth century has brought a break in the industrial sector and the way in which it manifests itself physically and geographically in the world. This paradigm break brings with it an accelerating obsolescence of several industrial landscapes (Sieverts, 2003).

⁹ Price, A. *Redeveloping Brownfields: A Different Conversation*. Water Front Regeneration Trust, Toronto, 1998

“Urban sustainability has been equated in Towards an Urban Renaissance”, with the need for dense and vibrant urban space. Good design is a tool for achieving the best use of space and a compact city. Derelict areas should be reclaimed and areas of social exclusion, usually associated with poor; hostile environments, must form part of city regeneration. (Towards an Urban Renaissance, 1999).

“Motivation for this increased interest and ‘affection’ for industrial structures is difficult to pinpoint, though it can be traced in the city planning of the early seventies. Efforts which focused on preservation and conservation as a strategy for economic revitalization were motivated by a major international occurrence: a violent reaction against the Urban Renewal policies of the 1950's and 60's which not only decimated the historic cores of many industrial cities, but also failed miserably in achieving the social and economic goals it purported” (Appleyard, 1979).

The entire industrialized world is experiencing similar effects of the restructuring of the global economy, the automation of production processes, and the relocation of industry to areas characterized by low production costs. After all, within every problem there is an opportunity. Derelict and contaminated industrial sites are unrealized resources for initiating urban regeneration and ecological restoration (Murungi, 2002). Those sites are often in advantageous locations near city centers, situated along waterways, supported by existing infrastructure, and adjacent to residential communities. Those landscapes are environmentally -impaired assets that need to be returned to productive use, and reintegrated into the surrounding community. For this reason reclamation projects should redefine the post-industrial landscape through community-based, interdisciplinary action that integrates longer-term solutions based on social, economic and ecological objectives.

The most common definition of deindustrialization in economic perspective is based on the share of manufacturing in total employment. There are a number of reasons why most analyses have focused on employment rather than output measures of manufacturing to define deindustrialization: first, the share of manufacturing employment is a commonly used indicator of the level of industrialization and economic development; second, employment is the most visible measure of the size of the manufacturing sector, and therefore one that tends to drive public perceptions of the issue; and third, to the extent that concerns about deindustrialization are based on the cost of adjustment between sectors, it makes sense to focus on changes in factor markets rather than output markets (Thomas, Luis, 2007).

3.2 Related concepts of derelict sites

Within the thesis it has define the term derelict land and all related concepts in order to define the field of work. Derelict urban industrial sites present a resource to society when reintegrated into urban context. *“Derelict site are previously developed land, which has a physical constraint caused by its previous use, which hampers its redevelopment or naturalization. It must not be ready for new development without remediation”* (Urban Land Institute, 2012). The definition of derelict land provides one general classification of the problem. A more detailed classification is also required in order to identify the factors contributing to dereliction. Such a detailed classification enables a register to be set up and from that register a set of maps of different scales to be developed. The preparation of maps and drawings is an important step toward an understanding of the problem at both local and national levels. A number of classification systems are available, which allow land to be mapped according to range of categories. The reader is referred to a summary of the methods published elsewhere (Bridges, 1987).

The term *“derelict land”* has been defined¹⁰ as Land so damaged by industrial and other development that it is incapable of beneficial use without treatment. *Derelict land*, according to the European Union, refers to “land so damaged by industrial or other developments that it is incapable of beneficial use without treatment”-. The European Union suggests *Unused Area* as one of the indicators of urban quality of life¹¹, the concept consisting in the combination of *Derelict Land* (as defined previously) and Contaminated Land (defined as "any land that appears to be in such a condition - because of the substances that it contains- that water pollution or significant harm is being, or is likely to be caused'). The EU indicator is measured as the percentage of the urban area unused and in main land uses. This understanding of Derelict land may be considered almost a synonym for the notion here of brownfields, as it only misses the concern of location (within urban areas).

¹⁰ Ministry of Housing and Local Government, MHLG, London, 1966 circular 59/66

¹¹ Unused area (contaminated or derelict land). List of Urban Audit Indicators, IV Environment, 17. Land Use in THE URBAN AUDIT. Towards the Benchmarking of Quality of Life in 58 European Cities. VOLUME III: The Urban Audit Manual, Office for Official Publications of the European Communities, Luxembourg, 2000

The damage to the land can be physical, chemical or biological, and can lead to the land being contaminated land, defined¹² as Land that contains substances that when present in sufficient quantities or concentrations are likely to cause harm, directly or indirectly to Man, to the environment, or on occasions to other targets. *“Contaminated sites include all sites that show levels of contamination of chemical, physical or biological alteration of soils, sub soils and of superficial or underground water in a way to determine danger for public health or for the natural or built environment”*¹³. Addressing brownfields simply as contaminated sites faces the obstacle that the concept involves a wide variety of sites whose characteristics may have to do nothing with other inherent characteristics of brownfields. For instance, waste landfills differ from brownfields because, although involving a contamination, they are in active use and do not need to be redeveloped or reused.

“Vacant land is previously developed land, without physical constraint, which the planning authority has indicated is currently available for redevelopment. The land must not be in use or include a usable building. Vacant Land and Buildings is to be used when it is not possible to identify a plot of vacant land on its own without some associated non derelict buildings (which must be scheduled for demolition). If the buildings are derelict then the site should be classified as derelict” (Aberdeen City Council, 2013). In 1999, the Lincoln Institute published a research paper on America's vacant urban land, a concept of little interest in the US until the late 1990's. The document concluded that it is an ever-present issue in American cities, a problem and resource at the same time, and that it increases more rapidly in cities with population growth due to past development practices that consumed more land per capita¹⁴. Pagano and Bowman argue vacant land and abandoned structures reflect different situations: In growing cities, vacant land represents a resource - a vast supply of potentially developable land that can be harnessed to pursue the city's vision. To depopulating cities, vacant land represents a red flag - an abundance of boarded-up buildings that signals a neighborhood in decline and a city in distress (Bowman and Pagano, 2004)

¹² Smit M.A. Contaminated Land: treatment and reclamation, Plenum press, New York/London, 1985

¹³ Italian definition, Italian national law 426/98 and 471/99, EEA (1999), Agenzia Nazionale per la Protezione dell'Ambiente (ANPA) (2001) from The Scale and Nature European Brownfield, CABERNET 2005

¹⁴ Bowman and Pagano, Terra incognita. J. Bonham, Spilka Blaine, Gerri, Darl Rastofer, Old Cities/Green Cities Communities Transform Unmanaged Land, planning Advisory Service Report no.506/507, Chicago, American Planning Association, 2002, in Berger, Alan, Drosscape Wasting Land in Urban America, Princeton Architectural Press, 2006

The term marginal land can refer to the agricultural use, or the way in which the land is related to derelict land. Marginal land can be defined as land which lies between two well defined states, the derelict state and the beneficial state. The derelict state has been induced by damage through development. Land in the beneficial state may be either natural or developed but it is not damaged, physically, chemically or biologically. Marginal land falls between the two states. It represents land where the benefits are limited by the natural or developed state, but that state has not been induced by the use of the land. For example, natural poor drained marsh land may be marginal; or soft, loose natural soils may be marginal in relation to their beneficial use for building. The term marginal can also refer to the cost of developing land in relation to the anticipated benefits once development has taken place. This text does not consider the marginal land problem separately but includes both marginal and contaminated land within the derelict land problem. The definition of derelict land provides one general classification of the problem. A more detailed classification is also required in order to identify the factors contributing to dereliction. Such a detailed classification enables a register to be set up and from that register a set of maps of different scales to be developed. The preparation of maps and drawings is an important step toward an understanding of the problem at both local and national levels. A number of classification systems are available, which allow land to be mapped according to range of categories. The reader is referred to a summary of the methods published elsewhere¹⁵.

*“Manufactured sites, coined by Niall Kirkwood in 2001, refers to three concepts: sites of manufacture-those located in older manufacturing cities and towns, generally with industrial character; manufacture of sites - environmentally challenged sites, which need a process and clean-up; and, manufactured sites as an integrated redevelopment process - the need for an interdisciplinary approach for reclaiming sites altered by industrial activity”*¹⁶. Kirkwood's approach to the brownfield phenomenon is related to this thesis's, although more focused in the issue of contamination, whereas the intent here is to provide a broader look at the different physical consequences of brownfield interventions in the city; contamination being one of several subjects considered.

Industrial ruins are implicitly described in The International Committee for the Conservation of Industrial Heritage's definition of Industrial heritage, as consisting of "the remains of industrial culture, which are of historical, technological, social, architectural or

¹⁵ Bridges E.M. Surveying derelict land, Oxford Science Publications, Clarendon Press, Oxford, 1987

¹⁶ Kirkwood, Niall, Editor, Manufactured Sites. Rethinking the Post-Industrial Landscape, Soon Press, 2001

scientific value"¹⁷. Due to the lack of a term for brownfields in Spanish, the Issue has been addressed in the Basque Country (Spain) as Industrial Ruins, defining them as "the sites, built or not, that having participated in an Industrial activity are degraded in such way that a new me is not possible but through a thorough work of recovery"¹⁸ This understanding is the same as the European Union's notion of *Derelict Land* significantly similar to other brownfield definitions.

*"Greyfields is a term introduced by the Congress for the New Urbanism to describe retail properties that require significant public and private sector intervention to stem decline; developed sites that are economically and physically ripe for major redevelopment"*¹⁹. The concept is set in contrast with the CNU's understanding of brownfields, basically as contaminated urban development sites. For the present purpose, this thesis considers no difference between brownfields and greyfields, as the issue of contamination is seen as a 'may be' while the decisive conditions for the focus in the sites is primarily the state of abandonment, vacancy or under use, and the potential for reuse or redevelopment. More specifically within these conditions, the focus relies in those sites located in developed urban areas - a notion that includes greyfields.

Terrain Vague, a French expression from 1970s filmmaking, was introduced in the design world by the Spanish architect and critic Ignacio Sola-Morales as his working theory for designing with urban land that appears to be "empty, abandoned space". "He saw great potential for understanding the terrain vague from the metropolis as an architectural opportunity when few others did"²⁰. Similarly, *terrain abandonné* is the French term for brownfield, and is defined as "space previously developed; temporarily or definitively abandoned following the cessation of activity; and need to be reclaimed for a future use and can be partially occupied, derelict, or contaminated"²¹. Both concepts are tightly related with this thesis's.

¹⁷ The International Committee for the Conservation of the Industrial Heritage [TICCIH] '1 Definition of Industrial Heritage' in *The Nizhny Tagil Charter for the Industrial Heritage*, TICCIH, July 2003

¹⁸ *Guia Técnica de Criterios Ambientales para la Recuperación de Ruinas Industriales*, IHOBE S.A. for the Basque Government, 1998

¹⁹ *Grayfields into Goldfields. From falling shopping centers to great neighborhoods* a study by the Congress for the New Urbanism and Pricewaterhouse Coopers, February, 2001, www.cnu.org

²⁰ Sola-Morales Rubio, Ignasi, *Terrain Vague*, Anyplace, ed. Cytha C. Davidson, Cambridge: MIT Press, 1995 in Berger, Alan, *Drosscape, Wasting Land in Urban America*, Princeton Architectural Press, New York, 2006

²¹ French definition for Brownfield. Ministère de l'Environnement, 2001, in *The Scale and Nature of European Brownfields*, CABERNET, 2005

3.3 Brownfield Interventions

Since the mid-1980s, policy makers and planners in North America and Europe have been paying significantly more attention to measures designed to foster sustainable development and improve the quality of life in urban areas. Of these, one that has gained widespread political support in the US and Canada is the redevelopment of under-utilized brownfield sites, which are often located in the core sections of urban areas and, as such, are prime targets for urban revitalization.

Governments at all levels have, in fact, started implementing a wide range of innovative policies intended to lessen the costs and risks associated with brownfield redevelopment, so as to make it attractive and feasible. Such policies have led to a kind of “inner city recovery,” (Jone, 2001) as thousands of sites have been cleaned up and redeveloped. But, while many communities have started to realize the economic opportunities that derive from recycling brownfields into productive industrial, commercial and residential properties, few have taken full advantage of the potentially enormous social, environmental and economic opportunities that can accrue from using these sites to enhance a city’s green space and overall green infrastructure.

In Europe, the greening movement has been playing a much more central role in the design of sustainable communities than it has in North America. For instance, between 1988 and 1993, over 19% of brownfield (derelict) sites in Britain were converted into green spaces more than any other end-use. In North America, on the other hand, the focus has been put instead on the economic benefits that can be attained through public-sector support of private-sector redevelopment for industrial, commercial, and residential purposes (United States Conference of Mayors, 2000). However, there is a growing awareness in the US and Canada among many community groups and environmental organizations that the public sector should also be undertaking or at least supporting the greening of brownfields because it holds potentially enormous benefits of all kinds.

One city that has been particularly proactive in converting brownfields into green spaces over the last decade is Toronto, Canada. The Planning and Parks Departments of that city have focused on enhancing the green space inventory and overall quality of urban life in the city (Toronto Planning, 2000). On the basis of the results produced by this particular “greening experience,” the main objective of the present paper is to discuss the implications that it may entail for brownfield redevelopment in comparable urban areas.

Participatory planning and the redevelopment of brownfield locations have both figured prominently in urban and regional planning strategies in recent decades. Despite their growing importance, these trends have rarely been analyzed in concert however. Further, the issues of social and income diversity within this context have received less attention (Jone, 2001).

Brownfield can be situated in diverse communities; may be large or small; reflect the legacy of a wide range of prior land use activities; be redeveloped as residential; commercial or industrial properties; promote both environmental and economic gains; face a wide range of regulatory and non-regulatory barriers to success; and attract both public support and opposition (Jone, 2001).

The diversity of experiences across brownfield sites, a common thread in their redevelopment emerging from surveys and other studies is that the uncertain liabilities in redeveloping contaminated sites and the extraordinary (relative to a clean parcel) costs associated with investigating and cleaning up such sites can make public interventions in brownfields welcome and in some cases essential. Unfortunately, it is not clear what kinds of interventions are most valuable. According to the public sector survey, public financial support generally appears more attractive when offered as a reimbursement of environmental investigation costs rather than a subsidy to construction activities. However, the relative effectiveness of nonfinancial interventions - a change in regulatory requirements such as reducing cleanup standards or liability relief that releases “innocent” parties at contaminated sites from long-term damage claims - may be even more critical (Kris, Lauren, Anna and Peter, 2004).

3.3.1 Definitions and major concerns

Many of the older industrial countries have started to address the challenge to defining the sites. However, not all countries have developed a specific term and definition for the sites, and, within the ones that have, there seem to be different concerns and understandings of the sites. A look at 18 different definitions in Europe and North America reveals five basic concerns around this type of sites: their state of abandonment; their state or possible state of contamination; their potential for new use; their former use; and their location. The first three are the major concerns, addressed by most countries. In this line, Niall Kirkwood highlights the remaining contamination on the sites and the motivation to return them to productive use as two important reasons for brownfield redevelopment (Niall, 2001). However, when focusing on the challenge within the city, the issue of location (within urban areas) is also very relevant, although only referred to in two definitions (Czech Republic and Germany). As for the former use of the sites, while some definitions are limited to industrial use, many extend this to commercial use, economic activities, or even to any other previous use.

For the purpose of dealing with the physical challenge of brownfields within the city, this thesis considers the most suitable definition for the term brownfields:

“The sites that have been affected by the former uses of the site and surrounding land; are derelict and underused; may have real or perceived contamination problems; are mainly in developed urban areas; and require intervention to bring them back to beneficial uses.”²²

The literature reviewed reveals the relatively recent concern - since the 1990s - about the 20th century's Industrialization legacy of abandoned and underused sites within the cities in the former industrial regions. Commonly known as *brownfields*, these sites embody a vast range in size and nature: abandoned gas stations, derelict railroad properties, underused waterfronts, closed factories, refineries, mines, and military bases are just a few examples. The sites are found both in central urban areas but are also in peripheries, and frequently include build remains from their former use: from single elements (i.e. chimneys, cranes, tanks) to buildings (i.e. workshops, warehouses, mills, factories), to infrastructures (i.e. streets, roads, railroad).

²² CABERNET, (Concerted Action on Brownfields and Economic Regeneration Network) definition, www.cabernet.org.uk

The concern about their presence relates to the sites, its immediate context or surrounding neighborhoods, and, ultimately to the city. The common challenge of this broad range of sites is the overall degradation of derelict and underused already urbanized land. Although for the most part it is some kind of economic factor that leads to abandonment, the sites are usually also degraded environmentally- with real or perceived contamination- and socially, particularly when there is a community within the site. This poor state of quality of life affects not only the sites themselves, but also the surrounding areas and the city at a larger scale. At the site scale, brownfields remain neglected, detached and disconnected from the city's socio-economic networks. At a larger scale, they behave as physical holes or urban voids; as barriers to the city's spatial understanding and legibility, and to its physical integration and mobility

Co-location reflects advantages in 'leveraging' the economic value of Brownfield development through, for example (ICMA 2003):

- enabling assessment, remediation, and redevelopment of Brownfield and other adjacent sites so that the condition of one property does not negatively impact on the potential of another
- combining resources to create a package of planning and remediation tools and programs to revitalize areas with distressed properties
- improving cost effectiveness of area-based planning
- improving funding for infrastructure improvement such as new roads or public transport
- creating a critical mass of people or activities to make transport access effective.

"Seven-step model, which is widely used, can be summarized into a process with three distinct activities aimed at deciding which sites should be selected for redevelopment, investment and marketing" (Thomas, 2002). Figure 3 demonstrates this process which not only identifies the three activities involved, but also the levels of decision making and collaboration among the participants. The initial activity in this model is the site identification and data collection process or site inventory. The second step, however, in this model is the screening and ranking process with the intention to narrow down the number of candidate sites. The third step is the analysis and evaluation process (Thomas, 2002).

According to the U.S. Environmental Protection Agency form 2001 the ideal process for redevelopment of brownfield sites must consist of seven steps (Figure 3):

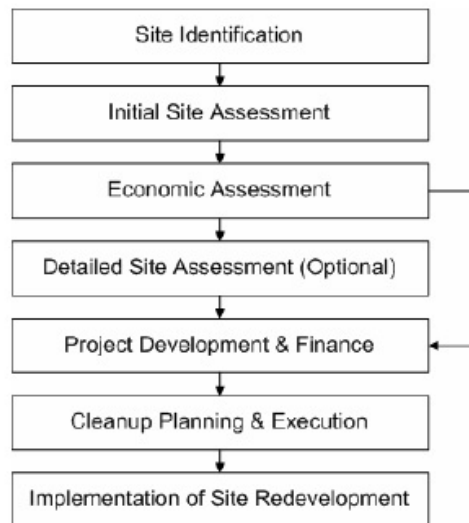


Figure 3 - Brownfield redevelopment process (Source: Based on USEPA, 2001)

1. *Site Identification*: It requires developing and maintaining a registry of sites, advertising and marketing abandoned properties, and helping developers to find suitable sites.
2. *Initial Site Assessment*: It involves reviewing public records, physical surroundings, and other readily available data related to the site.
3. *Economic Assessment*: It entails the evaluation of site characteristics to find out if the site is potentially viable or non-viable for redevelopment.
4. *Detailed Site Assessment* (if needed): It encompasses environmental engineering investigation, sampling, and chemical analysis of the site.
5. *Project Development and Finance*: It requires performing a financial feasibility analysis, developing financing plans for cleanup and redevelopment, and arranging financing which involves meetings with lenders, insurers, realtors, project partners, and nearby communities.
6. *Cleanup Planning and Execution*: It involves selecting and implementing a cleanup approach that can involve high capital costs of remediation, public notices, and reports for regulators.
7. *Implementation of Site Redevelopment*: It entails clearing and/or demolition, new construction, alteration and/or reuse to suit the new use for which the property is being redeveloped.

3.3.2 Goals for Brownfield Interventions

The goals proposed distil into physical parameters the multiple social, economic, and environmental opportunities for brownfield interventions to contribute to urban sustainability and quality of life. The goals are described in this section together with their rationales and objectives. Each goal responds to an area related to urban design and covers different opportunities. At the same time each goal has a spatial and physical consistence articulated in a set of measurable objectives. The focus on the physicality of the goals responds to the belief that urban design driven by social, economic and environmental rationales provides a physical capacity to support a more sustainable way of living. The focus on the measurability of the goals lies in the intent to evaluate the contribution to urban sustainability by the degree of achievement of these goals (Jone, 2001).

Goals for Brownfield Interventions	Area the goals relate to:
1. Improve the Legibility of the City	Built Form: Urban Fabric
2. Improve Urban Integration and Mobility	Built Form: Urban Networks
3. Green the City	Natural resources: Nature, Air & Water
4. Build Complete Communities	Built Form: Mixed Use
5. Mitigate the Impact of Urbanization	Natural Resources: Land & Energy
6. Deal with the Pre-Existing	Pre - Existing

Table 1 – Six goals for brownfield intervention (Jone, 2001, pp.62).

Improve the Legibility of the City

Goal one is to improve the city's spatial understanding by enhancing the existing and surrounding urban fabric, increasing its compactness and diversity, and revealing its site-specific physical features. As urban voids in the city fabric, brownfields prevent a clear spatial understanding of the city. Intervention can repair a fragmented urban fabric, and, by increasing its compactness and diversity, enhance social diversity, integration and interaction. New uses can satisfy the community needs of open space, housing, and jobs. Economically, these can increase productivity, complement existing economic activities, and provide benefits through the creation of jobs and tax revenues, contributing to economic regeneration. Environmentally, increasing the compactness of the urban fabric discourages the use of the private vehicle, reducing CO2 emissions and fossil fuel consumption, as the relationship between gasoline consumption and urban densities in major cities around the world demonstrates more compact urban forms involve a general reduction in gasoline consumption. At the same time, the reuse of these sites to accommodate urban development reduces pressure on Greenfield sites (Barger, 2006).

Objectives:

- Enhance the existing and surrounding urban fabric.
- Increase the compactness of the urban fabric.
- Increase the diversity of the urban fabric.
- Reveal the area's site specific natural features.

Improve Urban Integration and Mobility

The overlaying of ecological and urban strategies offers a means by which projects create new systems of interconnected networks that complement the existing structures. Behaving as physical holes in the urban fabric, brownfields interfere with the city networks, hindering mobility of people and goods, and the integration of activities. Enhance the existing and surrounding urban networks favoring transit and non-motorized modes of transportation. By repairing these networks, brownfield interventions hold the capacity to enhance social integration and interaction and to improve accessibility to different social needs, such as open spaces, services and amenities. Economically, it favor's the integration of new economic activities with those in the surrounding neighborhoods, increasing accessibility to the public as

customers, consumers, or employees. Environmentally, it reduces distances, discouraging the use of the private vehicle, thus reducing CO2 emissions and fossil fuel consumption (Barger, 2006).

Objectives:

- Enhance the existing and surrounding street network.
- Enhance the existing and surrounding pedestrian network.
- Enhance the existing and surrounding transit network.
- Promote other non-motorized modes of transportation.

Green the City

The reuse of vacant and abandoned urban land to green the city alleviates the lack of green open space and the concern on real or perceived contamination. Together with programmed activities, these new public open spaces contribute to the social regeneration of the sites and surrounding areas. It is essential to improve the quality, quantity, and accessibility to green public open space and for contaminated sites restore the sites and any potential environmental hazards. *“These industrial places have been called the parks of the twenty-first century. This vision is entirely appropriate to the future of our cities and the direction that must be taken.”* (Hough, 2001)

The increase in permeable surfaces reduces construction and maintenance costs of open spaces. The remediation of contaminated soil and the increase in permeable surfaces improves soil and water quality, and thus the environmental health of the sites and their surroundings. Although its effectiveness depends on the plant species, the increase in vegetation significantly improves air quality (Hough, 1995), as plants filter dust and absorb gases lowering city temperatures. Vegetation also collects heavy metals, but plant damage may occur if pollutants are excessive. As the sites usually contain little green open space, by increasing the quantity of green open space, the sites can improve accessibility to and connectivity among green open spaces, providing settings that enhance urban biodiversity. Last, introducing recycling facilities, composting and urban agriculture also reduces waste and favors food security.

Objectives:

- Improve the environmental quality of public open space.
- Increase the quantity of green open space.
- Improve the accessibility to green public open space.
- Include other environmental features (i.e. recycling facilities, composting and urban agriculture).

Build Complete Communities

“As socially and economically derelict or underused, these sites negatively affect the surrounding neighborhoods. Improve housing affordability, social integration, and accessibility to goods and services, and encourage economic revitalization is one of the most important goal of brownfield interventions.” (Jone, 2001).

However, their reuse provides space to alleviate existing needs within the surrounding neighborhoods, contributing to build a more complete community by complementing existing urban activities with new ones. The needs may be related to housing, economic activities, amenities, open spaces etc. Socially, this can promote housing affordability, social diversity, integration and interaction, transforming the sites into socially vibrant centers of community life. Economically, providing space for economic activities to take place improves economic productivity, generates economic benefits through the creation of jobs and tax revenues, and improves the accessibility to economic activities. All this contributes to the economic revitalization and regeneration of the site and its surrounding communities. Environmentally, introducing new uses in these sites reduces development pressure on greenfield sites, and, by improving accessibility to community need and economic activities, the use of the private vehicle is discouraged, reducing CO2 emissions and fossil fuel consumption.

Objectives:

- Increase housing availability.
- Increase housing affordability and social integration.
- Improve accessibility to services and amenities.
- Encourage economic revitalization

Mitigate the Impact of Urbanization

When the sites are used to accommodate urban growth, the optimization of the use of the land reduces the development pressure on greenfield sites. With brownfield urban intervention it try to reduce the city's overall resource consumption and waste generation, with a particular focus on land as a natural resource and soil, water, and air contamination as waste.

This contributes to preserve the countryside and minimize urban sprawl and its impacts on infrastructures efficiency, traffic congestion, air pollution and resource depletion. As many sites often present some kind of contamination, real or perceived, their remediation reduces contaminated soil and consequently water, and alleviates the social concern of a real or perceived contaminated environment. Often referred to as an off-site treatment, excavation and disposal - the conventional "dig and dump" do not reduce the overall contamination in the metropolitan area, as it only shifts the problem somewhere else. (Berger, 2006)

Objectives:

- Reduce brownfield land in the metropolitan area.
- Reduce pressure of greenfield development.
- Reduce contaminated soil in metropolitan area
- Include green building practice

Deal with the Pre-Existing

“The reuse, restoration and integration of the existing buildings, structures and infrastructures - opposed to its demolition or mere preservation - provides the possibility for reconciliation with an often neglected past, through what Hough suggests as the opportunity to celebrate past heritage”. (Hough, 1995) It is essential to underline the value, and enhance the site's social, cultural, historical, and environmental pre-intervention conditions of the site. These may vary from remaining structures and infrastructures, to existing biodiversity, to a community within the site or to a larger community concerned about the site.

This potential reuse of existing structures and infrastructures, economically, reduces demolition, building and developing costs. Environmentally, it reduces waste production and resource consumption of construction materials. Due to the usual high community concern around brownfield interventions, they represent the opportunity to promote community involvement in the decision-making process, which becomes crucial when there is an existing community within the site or risk of gentrification in or around the site. As for the site's pre-intervention environmental conditions, the preservation and increase of green open spaces holds the potential to enrich existing biodiversity, and restore the natural hydrological balance, improving water quality and minimizing the risk of floods, and reducing development costs (Hough, 1995).

Objectives:

- Reuse, restore and integrate existing structures and infrastructures.
- Engage the community in the decision making process.
- Preserve and enhance existing biodiversity and green open space.
- Address the site's former uses through design.

3.3.2 Methods to identify potential brownfield sites

Usually, the identification of brownfields is done by comparing potential sites with the predefined characteristics of brownfields. The predefined characteristics of brownfield sites are: (CABNET, 2013):

- previously developed;
- locating in urban areas;
- currently abandoned;
- requiring redevelopment;
- real or perceived contamination problems.

However, information regarding potential sites is neither always available nor accurate. This is because registration of records is incomplete given that there is resistance on the side of the property owners to register their land as brownfield. According to Coffin and Meyer (2002), the central barriers to gathering information from property owners could be characterized as the following:

- Fears about the potentially negative impacts on property values;
- Fears about using the wrong data to characterize a site as a brownfield;
- Concerns about limited institutional capacity for developing such an inventory;
- The inability of communities to coherently identify the purpose behind such lists.

Little research has been done regarding the methods to improve the identification of suspected brownfields. An exception is the research done by Coffin and Meyer's (2002) where they proposed to make effective use of abundant databases for brownfield identification. They believe that the barriers in identifying potential brownfield sites can be overcome by linking currently available information sources.

Coffin and Meyer separate brownfield data resources into three types: federal, state and local sources. Federal and state environmental agencies offer the most direct information about the confirmed locations of contaminated soil and groundwater. This sort of information provides a general overview of the environmental and safety requirements. Local information sources can provide more accurate and valuable information to identify the potential sites where the contamination is not sufficiently problematic to attract the attention of federal or state government. Such information can be found in local environmental records, zoning and individual parcels property tax records - which can identify properties where delinquent taxes remain unpaid.

3.3.5 Methods to evaluate the redevelopment process

There is a lack of research on the methods for the evaluation of redevelopment potential of brownfields sites. Little has been published on the prioritization of sites and even less regarding the evaluation approaches. This section discusses two approaches for evaluating the redevelopment potential of brownfields industrial sites. The first framework are developed by SGN and the second by Thomas (2002), which are able to assess different brownfield sites in order to prioritize them for redeveloped.

With a limited government's budget and a large number of potential brownfields industrial sites, the selection of sites for redevelopment is difficult. In order to make a sound decision, both relevant information and a method to integrate the information is clearly necessary. Based on the case study of three American cities, Smart Growth Network (1996) developed an integrated framework for site prioritization in terms of site-marketability and community benefits. A second evaluation approach proposed for site prioritization and selection is a Brownfield Site Ranking Model developed by Thomas (2002). The following section explains the methods.

SGN's integrated framework

Using a case study approach, Smart Growth Network (SGN) in the U.S. developed an integrated approach for the evaluation of redevelopment potential of brownfield industrial sites. This tool aids in the selection of potential brownfield sites in terms of both their economic feasibility, and their environmental and social benefits.

With a goal to develop an integrated framework, considerations have been focused to economic and social perspectives, while environmental aspects are not emphasized explicitly. Essentially, the framework involves six steps to identify brownfield sites. It provides information to individuals and organizations involved in setting priorities and developing strategies for brownfield redevelopment. The following Table 2 shows the basic six steps in the framework.

1. Target Geographic Areas
2. Identify Brownfield Sites in Each Area
3. Characterize Brownfield Sites Based on Marketability
4. Screen Sites for High Potential Community Benefits
5. Evaluate Potential Impacts of Redevelopment Alternatives
6. Develop Strategy for Brownfield Redevelopment Activities

Table 2 - General Framework for brownfield sites prioritization (source: Smart Growth Network, 1996)

1. *Target Geographic Areas*: Focusing on certain target areas that comply with specific location characteristics, the objectives of the brownfield redevelopment can be better achieved. This means that the number of potential brownfield sites for redevelopment is narrowed down making the decision-making process more efficient. Identification is focused in three general geographic areas. a) Mixed use areas with highly exposed, low income, minority populations; b) Industrial areas with large land tracts and significant job creation potential; c) Waterfront/downtown areas that are attractive to businesses.

2. *Identify Brownfield Sites in Bath Area*: Identification of brownfields sites reduces the complexities and uncertainties of the site location selection as well as the planning costs for developers. Information is gathered from a variety of sources. These include a) local knowledge and land use surveys; b) Contact local economic development offices; c) Coordinate with city urban planning activities; d) Use federal and state environmental databases; e) Use GIS to incorporate a variety of data sources.

3. *Characterize Brownfield Sites Based on Marketability*: Taking in consideration both site-specific and more general neighborhoods characteristics are important in this step. Moreover, characterizing the marketability of sites may need to be revisited as information, market and social conditions change. Sites can be characterized as a) Low marketability; public funding necessary (Public sector takes the lead); b) Marketable for specialized developers; could make use of alternative funding sources. (Public-private partnerships); c) Highly Marketable; traditional sources of funding (Private sector takes the lead).

4. *Screen Sites for High Potential Community Benefits*: This step assesses the potential community benefits associated with the redevelopment for the first two categories described above, so that governments can focus their efforts accordingly. Screening criteria include site and neighborhood characteristics, as well as attributes of the redevelopment plan itself. Evaluating sites using these criteria will help to identify sites that are likely to provide substantial community benefits, and will identify obstacles that may hinder such benefits from being realized.

5. *Evaluate Potential Impacts of Redevelopment Alternatives*: After the previous assessing steps, it is important to evaluate impact of the high priority sites if the redevelopment is implemented. The purpose of this evaluation is twofold. First is to help governments prioritize potential sites in terms of the overall benefits, so that public funding efforts and redevelopment projects plan can be made accordingly. Secondly, this evaluation can also help identify site characteristics that qualify projects for alternative funding sources and to frame the rationale for tapping into those sources.

6. *Develop Strategy for Brownfield Redevelopment Activities*: Establishing priorities for development projects, identifying a diverse of funding sources, and an action plan.

This framework and criteria provide a tool that can be used by a variety of organizations and individuals involved in setting priorities and developing strategies. Potential users and their applications include (Smart Growth Network, 1996):

1. City managers;
2. State and federal governments;
3. Stakeholders include:
 - Community development organizations,
 - Environmental justice advocates,
 - Lenders,
 - Developers and other private businesses,
 - Environmental regulatory agencies, and
 - Local economic development agencies.

As the framework is developed in a general way, it still needs to be refined to accommodate each city's unique constraints and priorities.

Thomas' GIS-based evaluation framework

As an effective tool to integrate multiple geo-spatial and socio-economic data, GIS is one of the essential information sources and analysis tools for both urban studies in general and brownfields in particular. Additionally, relevant information can be quickly and easily accessed in a web environment by stakeholders and the public which could help enhance public participation in the planning process (Thomas, 2002). Thomas (2002) proposes the Brownfield Site Ranking Model for selecting sites for potential redevelopment. This model identifies 12 siting criteria derived from the review of general siting factors that can be evaluated in locating a business on a formerly used site. Such factors include commercial marketing guidelines, financial incentives, environmental regulatory compliance requirements, regional infrastructure and labor resources, and local community acceptance. These factors were integrated into a conventional, step-by-step site identification and selection process using a weighted multi-criteria procedure. *Table 3* and *Table 4* below shows the evaluation matrix of brownfield sites selection for redevelopment.

LOCAL GOVERNMENT RANKING CRITERIA	<i>Max. Point Value (Weight)</i>
Site Conditions	30
Compatibility with Local Land Use Controls (Zoning Ordinance)	25
Current Use Compatibility with Local Land Use Plans (Master Plan)	20
Compatibility with Surrounding Land Uses	15
Utility Infrastructure Capacity	10
Telecommunications Infrastructure	10
Transportation Infrastructure	10
TOTAL AVAILABLE POINTS (LOCAL)	120

Table 3 - Weighting and ranking criteria for brownfield site selection at the local level (Source: Based on Thomas, 2002)

COUNTY AUTHORITY FUNKING CRITERIA	Max Point Value (Weight)
Financial Incentives	40
Environmental Risk and Compliance	30
Land Re-Use Preferences	20
Labour Resources	10
Market Conditions	10
TOTAL AVAILABLE POINTS (REGIONAL)	110

Table 4 – Brownfield site selection, weighting and ranking criteria at the country level (Source; Based on Thomas, 2002)

Thomas (2002) divides the criteria in two sets according to the perspective of the local government and of the county authority. The rationale for this division lies on the fact that the local government considers more important the physical conditions of the site as; whereas the county authority considers the marketability aspects as more relevant. Given that both sets of criteria contribute to identifying the aspects involved in the decision-making process, both levels are important to take into account when developing an evaluation framework for the potential redevelopment of brownfield sties. Moreover, because the complete evaluation process can be computerized and adapted to a geographic information system (GIS), it provides a practical model for commercial developers, real estate brokers, siting consultants, and local communities in selecting target sites for redevelopment.

Chapter IV: Economic and social redevelopment of recycled site

The present chapter concentrates' on economic and social development of recycled site. In this chapter it will be define the concept of Industrial Heritage and possibilities of development of industrial tourism. It was mentioned that brownfield interventions face several obstacles. These vary from those current land use policies that follow the spirit explained above, to the potential state of contamination of the site and the environmental hazard it may embody. Contamination is not seen as an environmental issue, but rather as a major economic liability due to the cost of environmental restoration and the possible decline in the surrounding land values. Multiple ownership and the existence of a community concerned over the site are also seen as economic liabilities, as they may lead to a delay in the redevelopment process.

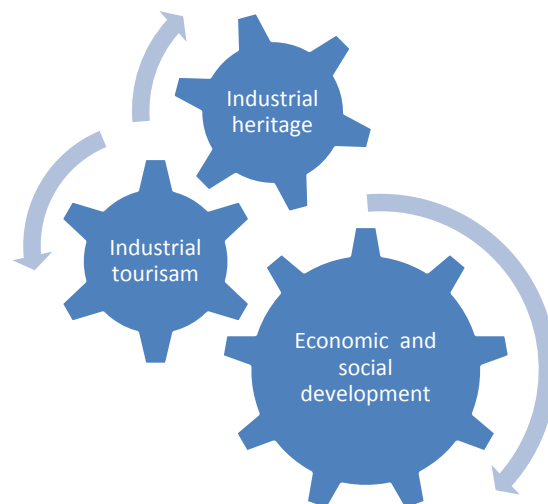


Figure 3 - Economic and social development “mechanism” (own source)

Regarding the environmental implications, Thomas H. Russ (2000) notes: *“The redevelopment of environmentally impacted sites is rarely undertaken with an expressed purpose of affecting an environmental cleanup. Environmental issues are of concern in the project only to the extent that they limit or impact the development program either physically or economically”*.

Economic incentives in order to overcome the economic obstacles, a range of incentives have been developed to promote brownfield redevelopment. On the one hand, there has been a considerable shift in many planning regimes throughout the 1990s at different administrative scales from national, regional or municipal to incentive urban development over brownfield sites. On the other, many countries have developed governmental programs to provide economic funds to overcome the liabilities (Russ, 2000).

Following the notion of a responsible redevelopment and productive reuse of brownfields properties, The National Brownfields Association argues in favor of processes with stakeholder participation and government incentives, by which all levels of government should offer and appropriately fund, as conditions warrant, a wide range of flexible incentives that promote the investigation, cleanup, transfer, and reuse of brownfields. Regarding risk assessment and cleanup approaches, it suggests all levels of government should investigate, and as appropriate adopt, flexible yet protective and scientifically sound risk assessment and cleanup approaches that are consistent with current and reasonably anticipated land and resource uses. At the same time, the public and private sectors should address liability issues, such as the concerns of buyers and sellers regarding liability for site conditions, and "finality" of cleanup decisions and devise workable mechanisms, such as viable institutional controls, to ensure the long-term effectiveness of cleanups (Jone, 2001).

In the United States, (the Environmental Protection Agency's, EPA, 1995) Brownfields Program has changed the way contaminated property is perceived, addressed, and managed. The program is designed to empower states, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields. Initially, EPA provided small amounts of seed money to local governments that launched hundreds of two-year brownfield "pilot" projects. Through passage of the Small Business Liability Relief and Brownfields Redevelopment Act, effective policies that EPA had developed over the years were passed into law. The Brownfields Law expanded EPA's assistance by providing new tools for the public and private sectors to promote sustainable brownfields cleanup and reuse.

4.1 Pursuing the social - economic balance

A common term for brownfield interventions is *brownfield redevelopment* with an intrinsic economic connotation. Although perceived as a key-element in an overall strategy for urban sustainability, a review of the literature concerning the brownfield challenge suggests that the economic concern is generally the major driver in the overall process. Brownfield interventions today face several and different interests and obstacles, often addressed from an exclusive economic point of view, with issues such as contamination or an existing community on the site often referred to as "economic liabilities" rather than as environmental or social issues. Although the reuse of the land and the reintegration of the properties into the economic cycle is a major objective, successful brownfield redevelopment policies and strategies particularly need the combination of environmental approaches with spatial and urban planning approaches to be integrated into policy approaches and vice versa (Ferber and Grimski, 2002).

It appears that the legal frameworks in many countries have not yet sufficiently integrated the needs arising from the viewpoint of environmental protection/restoration with the viewpoint of spatial and urban planning. In many countries, there is still no specific emphasis on the reuse of brownfields in the urban and spatial planning regimes. There is a need to consider, beyond an exclusive economic view, the environmental and social consequences of leaving this potentially reusable land that, when left underused and abandoned, creates barriers to urban activity and impoverishes urban quality of life. Not only is there a need to rebuild the city within the city and alleviate the deficiencies from former urban growth or simply from the changing forces that shape the city, but also there are lessons to be learned to guide planners and designers to avoid the creation and generation of this type of sites in the future (Russ, 2000).

Brownfield sites are considered an immensely valuable resource for the city's changing future. However, their complexity and the fact that they represent an emerging field, requires a collaborative and integrative search for solutions, not exclusive of just one discipline. Environmental, economic, legal, policy, and site and urban design expertise are needed, if the sites are to be restored to environmental health and integrated into the economic and social life of the city.

Even as we begin to define the principles of sustainable urban design, we find that some brownfield sites may, in time, heal and that, with planning and nurturing, the contamination will be biologically diminished. Research into the function of landscapes as systems is raising new design possibilities. The advancement of bioremediation and phytoremediation into practical design tools will provide landscape architects with the ability to design important remediation functions into landscapes as well as beauty. If we are to make the built environment work sustainably, we must find ways to make cities function environmentally. In some ways, impacted sites are among the most important design challenges (Russ, 2000)

4.2 The challenge of promoting social and income diversity in brownfield developments

Inherent to redeveloping the majority of brownfield sites is the high cost of doing so. This is borne from the fact that these locations have often been used for industrial activity that has had a negative effect on the local environment. In redeveloping such areas, environmental cleanup efforts to improve these polluted locations take place, a worthy cause, but also a costly one. Such efforts require a great deal of funding, which can be characterized with Jacobs' (1961; 292) term "*cataclysmic money*". Such money comes in vast amounts and is a catalyst for rapid change (Jacobs, 1961; 293). In regards to brownfield developments, this rapid change is important, as the slow development of such sites would be economically inefficient, while also creating neighborhoods that would be under construction for decades. However cataclysmic money also requires more rapid economic returns for the developers, as the risk in carrying such investments is quite high, and therefore creates areas that have a high short and medium term costs. This creates an economic impediment to social and income diversity, if left to market forces.

Therefore, brownfield areas can be developed as exclusive communities, or otherwise require some form of intervention to ensure a certain degree of affordability. While this occurs to some extent through limits on the prices of rental units, this mechanism does not afford any great opportunity to members of lower socioeconomic groups. Therefore, if social and income diversity is desired in these developments, overt measures are required, some of which will be discussed in the Best Practices section.

When considering the value of promoting social and income diversity in brownfield developments, which is the latter part of the fourth research question, one of the most important arguments in favor of such actions is found in just city theorist, Iris Young's (1990) contributions to the notion of social justice. Going beyond the traditional focus on the distributive systems that exist in society, Young (1990) promoted the idea that inequalities do not result solely from the system of distribution, but also from existing social structures, cultural norms and institutional contexts. In seeking to rectify the issues that arise out of these inequalities, just city theorists have argued that a greater effort is required to empower and create opportunities for many of the most disadvantaged groups in a society (Young, 1990; Sandercock, 2000; Schlosberg, 2007). As such, providing everyone with equal opportunities does not necessarily lead to equality, as this notion risks overlooking how societal inequalities are produced, and how they can be remedied.

In pursuing this vein of thought, efforts to foster social and income diversity in brownfield developments would require measures that have the overt goals of empowering and encouraging disadvantaged stakeholders to a greater extent than more dominant groups.

4.3 Industrial heritage

The Industrial Revolution profoundly modified landscapes and life styles, and rapid technological advances and the stripping of certain deposits have rendered most industrial sites obsolete. To save them from abandonment or destruction, a number of mines, factories, forges and manufactures have been inscribed on the World Heritage List (Michael, 2001).

“Out of the 690 inscribed sites there are 28 sites that are considered “Industrial Heritage.” Industrial Heritage embraces 5.3% of all cultural sites and 4% of all World Heritage Sites.” (Michael, 2001) Heritage is the most modern phase of conservation. It is the concept that provides “the link between the preservation of the past for its intrinsic value, and as a resource for the modern community as a commercial activity. (Ashworth and Tunbridge 1990). Industrial heritage sites are an important part of our built environment and landscape. They provide tangible and intangible links to our past and have great potential to play significant roles in the futures of our cities, towns and rural environments.

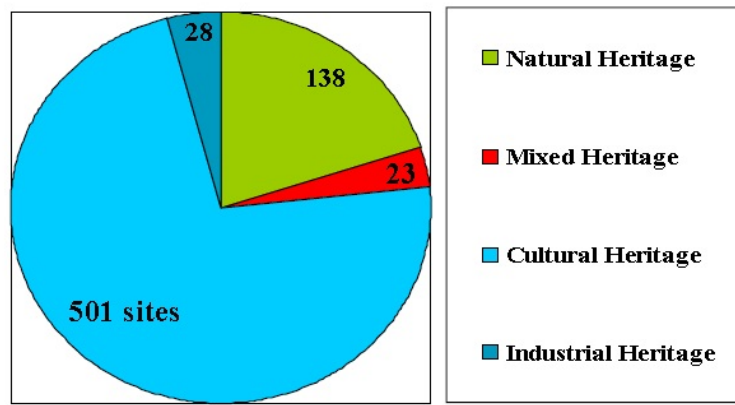


Figure 4 – Contribution of Industrial Heritage in World Heritage Sites (source: Michael, Industrial Heritage Analysis, 2001)

The Industrial Revolution profoundly modified landscapes and life styles. The massive means employed to extract raw materials and exploit the minerals and agricultural products resulted in great achievements and grandiose constructions, testifying to the creative genius of humankind. Guardians of the past, industrial sites testify to the ordeals and exploits of those who worked in them. Industrial sites are important milestones in the history of humanity, marking humanity's dual power of destruction and creation that engenders both nuisances and progress. They embody the hope of a better life, and the ever-greater power over matter. The last 30 years have brought increased awareness of the importance of industrial history in understanding heritage. (Noha, 2003)

The remains of industry include dramatic buildings, landscapes, sites and precincts as well as more everyday structures and spaces that work together to give our cities, towns and regions their character. All offer opportunity for reuse. Done well, such adaptive reuse can contribute to the building of social and cultural capital, environmental sustainability and urban regeneration.

Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education (Nizhny, 2003)

Industrial heritage sites can be found in urban, suburban, regional, rural and remote locations. They can range from large mines and factories to agricultural enterprises and to smaller, 'cottage' based enterprises. An industrial heritage site can also extend over a large area, as is the case with linear sites connected to transport or energy distribution. (Nizhny, 2003).

Industrial heritage sites may have been abandoned long ago, they may have gone through many changes of use over the years, or they may have only recently ceased being used for their original purpose. Sites in continuous use for a particular industry also often undergo significant physical changes as the technologies change. The heritage significance of an industrial place can be historic, aesthetic, social and/or technical and both tangible and intangible. They may be listed on local, state or Commonwealth government heritage registers or be completely unprotected. The owner may see them as full of potential, or as a problem that would best be resolved through demolition.

Industrial heritage sites are also often endangered. Research by English Heritage suggests that, in the UK, listed industrial buildings are more at risk than almost any other kind of heritage (English Heritage, 2013) Industrial activities and processes undergo constant change and development, so the history of industrial sites is often one of continual change and adaptation. Changes in products and technology mean that, unlike offices or houses, it is not easy to keep using custom-built industrial places for their original purpose. This means that adaptive reuse is particularly important in the conservation of industrial sites. It is a way to give them ongoing life while retaining memories and knowledge for generations to come.

4.3.1 Adaptive reuse of industrial heritage

Adaptive reuse of industrial heritage has economic benefits and costs at a range of scales, which impact on both the owner and the community. Disused industrial sites can have a negative socio-economic impact on surrounding areas. In contrast, as Urban Renewal Brisbane has shown, adaptive reuse of industrial areas can have a significant positive impact on the economic situation of the area. The report “Making Heritage Happen: Incentives and Policy Tools for Conserving Our Historic Heritage” identifies a number of ways that heritage sites can contribute to sustainable economic development and prosperity. These include the following:

- providing landmarks that serve as economic development foci and community ‘touchstones’;
- creating proportionately more jobs than new construction and providing better local expenditure retention;
- providing important tourism draw cards in urban centers and regional areas;
- attracting people and investment by enhancing the amenity or ‘livability’ of towns and cities.

Nonetheless adaptive reuse can be an expensive proposition, especially if sites are contaminated or structures are unsound. In these situations the economic viability of reuse is affected by the value of the property, by land value and other economic contexts. These economic considerations can have a major impact on the viability of one type of reuse over another. It is also important to factor in ongoing maintenance costs to budgets.

In some cases incentives such as heritage bonds, grants and loans, tax incentives or property incentives may help to make development more viable. Making Heritage Happen describes the purposes of such heritage incentives as follows:

- ensure that owners are not unduly disadvantaged by the constraints or extra expense that the regulatory system may impose;
- leverage private capital investment in conservation;
- generate additional conservation activity than would otherwise occur;
- counteract land use policies or other government programs that threaten heritage places;
- ensure that as far as possible a ‘level playing field’ exists between restoration work and new construction.

Not all adaptive reuse is costly. Some highly effective, low-impact reuses can be achieved on extremely tight budgets. Economic constraints can also lead to creative reuse solutions that support the heritage aims of the project.

Heritage considerations should be part of the early stages of a project and developed in concert with other aspects. Projects also need design and heritage champions throughout the procurement process and project development. The reuse of industrial sites with heritage values should be guided by a Conservation Management Plan including a Statement of Significance, which articulates what is most important about the place. A Conservation Management Plan is a critical document for guiding the adaptation of sites of heritage significance.

Other guiding documents should include feasibility studies to explore options for reuse and a robust master plan. The Conservation Management Plan and master plan are vital for informing ongoing work. These need to be budgeted for and invested in. The master plan needs to embed long-term strategies for the site, while also leaving space for flexibility and adaptation to respond to changes over time. This could include temporary uses or mothballing areas of the site that have high heritage values, but for which an immediate reuse cannot be found.

The development of large sites is usually a long-term process, and the master plan should include opportunities to rethink options as development progresses and in response to new findings, while still adhering to the site's Statement of Significance. Even after a good adaptive reuse, heritage sites can suffer incremental loss and damage. Ad hoc changes made in response to changing circumstances can result in heritage significance being eroded over time. It is important that the Conservation Management Plan and master plan are adhered to over time.

The interpretation approach and strategy should also be integrated into the design process early on. Clear and coherent interpretation builds understanding of the site among the users, managers and community. Such knowledge decreases the heritage site's vulnerability to future changes.

4.3.2 Industrial tourism

Over the last few decades, new types of destinations appeared in tourism because of the ever growing competition and economic restructuring of regions. In some cases such places became attractions which were considered ugly and unattractive earlier. As part of this process, industrial tourism was also strengthened. This means that former or still operating factories and other industrial facilities have become tourist destinations.

Although increasing wealth and leisure time have led to increased tourism, which has been the impetus for heritage planning, the relationship between planning, heritage, and tourism is one of paradox. As with any economic activity, tourism makes use of resources and produces an environmental impact that amounts to exploitation if the quantity and quality of those resources are degraded. Newby²³ (1994) identifies a complex relationship between heritage and tourism in which culture evolves from being a shared entity, to being exploited, and in extreme cases created. When culture is shared, tourism and heritage coexist so that tourism revenues can be used to sustain and conserve environments of heritage value. However, when culture is exploited or created, there is an explicit domination of commercial values over conservation values as tourism becomes central to the local economy. In this instance, the cultural heritage becomes a consumer product susceptible to a selection process restricted by the choice, fashion, and taste of international organizations involved in the marketing of the heritage product, and the consumers.

Because of the ever increasing competition and the economic restructuring of regions new forms of tourism and new types of destinations emerged in the last few decades. In the case of industrial tourism, former or still operating industrial facilities (e.g. factories, mills, forges, etc.) and related buildings are becoming attractions. These attractions can form clusters which are based on industrial regions – therefore, they can cover large territories. Industrial tourism is often related to deindustrialization: it occurs in regions where jobs disappeared and local economy is in crisis because of the collapse of the former industrial activities. Therefore, industrial tourism means not only a new form of tourism but it can be a tool for enhancing well-being and quality of life and also can contribute to the successful economic restructuring. (Lajos, Zita, Viktor, 2013)

²³ Newby, Peter T. 1994. Tourism-Support or threat to heritage. In Building a new heritage: Tourism, culture, and identity, G. J. Ashworth and P. J. Larkham, eds. London: Routledge.

According to a widely used definition, industrial tourism is based on former or still existing production (manufacturing or other). This activity can have various forms such as industrial heritage tourism or scientific parks etc.

From a different point of view, industrial tourism means that objects which were created not for being attractions (and in some cases it is not their primary function in the present) became tourist destinations. It means that sometimes the production itself can be a part of the attraction. However, the term, „industrial tourism” is a bit misleading because not only industrial activities and facilities can become attractions in this type of tourism, but all kinds of economic activities and buildings. Visiting agricultural facilities or service centers also can be defined as industrial tourism, according to literature.

Industrial tourism can have various benefits but maybe the most important ones are strengthening the image of the region and contributing to public relations activities. Tourism can help the residents feel safer about the industrial activities near them as well. Information transfer and learning are also important motivations for developing this type of tourism – to this end, governments and local authorities also tend to support industrial tourism.

Industrial tourism can contribute to the development of the whole region in several ways. Because of the deindustrialization and the global restructuring of economy former prosperous regions have to find new ways for their development. Their former manufacturing, mining and other industrial activities can offer an answer to this challenge, since the identity and built heritage of these areas are closely associated to industry. The closed factories can be revitalized for new activities: cultural and heritage tourism, or creative industries. Furthermore, industrial tourism can accelerate the restructuring process through the enhanced image and the creation of new jobs (Lajos, Zita, Viktor, 2013).

The realization that mass tourism in many cases is destructive of culture, the environment, and the built resources has contributed to the development of alternative forms of tourism. Viewed as a form of alternative tourism, the concept of sustainable tourism has been motivated by the growth in environmental awareness among many people and the recognition among conservationists that tourism is one method of capturing conservation values for conservation purposes. However, the term sustainability has become a catchphrase, which, partly because of its imprecision, has attracted widespread interest from proponents and opponents. Sustainable tourism is rooted in sustainable development, in the sense that if

tourism is to contribute to sustainable development, it must be economically viable, environmentally sensitive, and culturally appropriate.

From the practical point of view it is important to highlight that several difficulties can hinder the development of industrial tourism. One of the most important problems is the lack of funds since the potential destinations are often located in crisis hit regions characterized by declining income, severe economic and social problems etc.

In terms of the sustainability of heritage places, managing tourism can have substantial inherent potential to underpin sustainable development and conservation.

First, tourism can yield economic development at the local, regional, and national levels, creating jobs and bringing in much-needed foreign income. However, mechanisms for ensuring equitable access to social and economic resources and their distribution among all social groups of the local community require careful management. One area of sustainability that has received markedly less attention is that of financial resource mechanisms. Revenues generated from tourism should feed back into the local community through mechanisms of cross-subsidization such as revolving trusts to refurbish and reclaim buildings or enforced entrance fees to tourist attractions.

Whit in the thesis it has examined the potential relationships between tourism, conservation, and planning within the sustainability discourse. Four objectives have been identified:

- the need for long-term planning;
- the need to protect the cultural heritage as a natural resource that if overexploited will be degraded;
- the acceptance of change and development to ensure continuity;
- the need to consider equitable access to heritage resources by the local community and visitors.

Chapter V: Urban recycling of industrial derelict sites through case studies

This chapter analyzes three specific cases, which reconstruction respects all principles of urban and land recycling according to the objectives of this thesis. All three cases are industrial buildings or industrial sites inside the city urban zone and for longer times were in state of abandonment and derelict. Before the reconstruction and brownfield intervention this sites were significant social and environmental problem for the city. What in the analysis it was studied the urban and economic policies and management process which carried out the brownfield reconstruction. In the research it was conducted comparative analysis of the three examples of applied economic policies as its impacts on site, district and city.

Selection of case studies was depending of dominant character of strategy applied in brownfield intervention. In the first case of *Distillery District* in Toronto in was found out that the specific interest and goals for intervention was economic and cultural prosperity of the district. In the second case of Manchester Heritage, with special reference to *Ancoats Urban Village*, dominant strategy is on social and cultural reutilization of industrial heritage. Also, as a positive example of revitalization of these derelicts sites was reconstruction for residential purposes. In the third case of *Terrassa Industrial Heritage* it was performed the reconstruction and redevelopment for mostly public and governmental uses. The case study of city of Terrassa have an additional form of research, the field work, gathering information on the site, formation and application of survey form and surveying citizens in order to gather information on the impact of urban intervention on industrial heritage in the city. The survey is an important component to understanding the effects of place-making.

5.1 Distillery District in Toronto

The first case study is Gooderham and Worts distillery, after redevelopment renamed to “The Distillery District”. Canada’s historic Distillery District is located in downtown Toronto in Ontario. After several years of urban interventions it was opened to the public in 2003. Recognized as a national historic site, Toronto’s Distillery District contains over 30 Victorian heritage buildings on 13 acres in historic center. Distillery is not only Toronto’s only heritage district but also it’s one of the city’s largest hubs for arts and culture. The district was designated a National Historic Site of Canada in 1988.

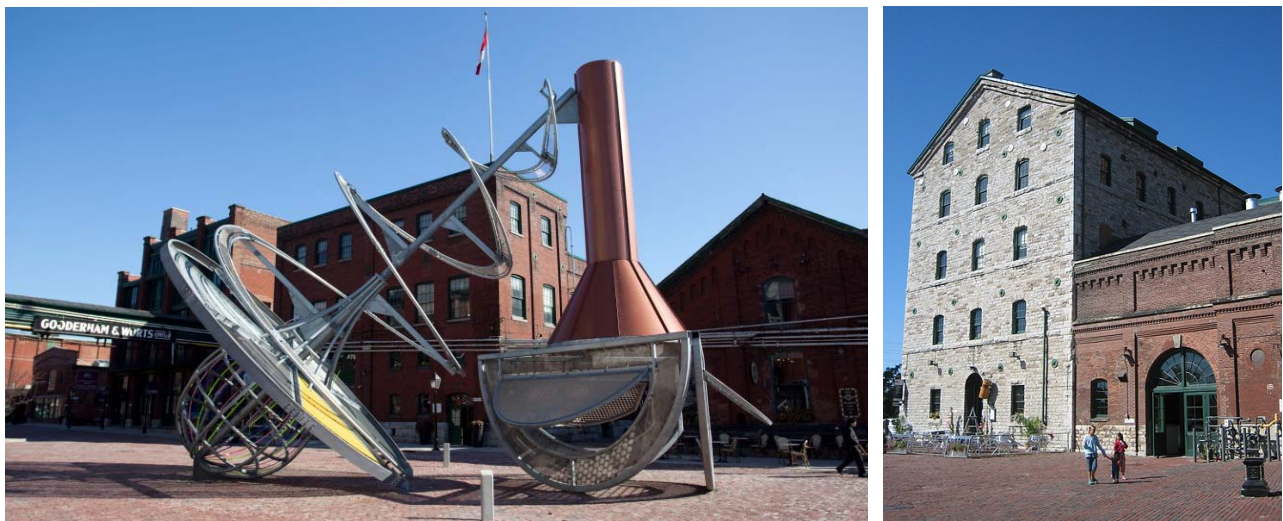


Figure 5 -The Distillery District open public spaces (source: www.thedistillerydistrict.com)

Once the Gooderham and Worts Distillery, it represents the grandest and most well preserved collection of Victorian Industrial Architecture in North America. The Gooderham and Worts Distillery was integral to both the growth of Toronto and to Canada which during its hay-day, contributed more to Federal repositories than any other Canadian enterprise. In the 1860s it was the largest distillery in the world, providing over 7,600,000 litres of whisky. In the late 20th century the area was becoming increasingly deindustrialized and distillery operations were coming to a close, leaving the district neglected and the formerly vibrant distillery surrounded by empty lots. The twentieth century brought war, prohibition, globalization, decline, and rebirth as a vibrant arts and cultural district (The Distillery District, 2013).

5.1.1 Brownfield redevelopment and green space management in Toronto

The scientific literature on the redevelopment of brownfields and derelict lands in Canada has been steadily expanding. The issue of converting urban brownfields into green spaces has received virtually no attention in the planning and economic development literature, although there has been some attention devoted to the greening of urban areas generally.

The City of Toronto is Canada's largest urban and metropolitan area with 2.4 million people, which is surrounded by four regional municipalities (Durham, Halton, Peel, and York) adding 2.3 million people to the Greater Toronto Area (GTA). The former City of Toronto, where most of the brownfield-to-green space projects are currently located, has a population of over 650,000 (14% of the GTA) spread over an area of 97 km².

City of Toronto generates funds for green space projects from development activities. A construction project is required by law to: apportion 5% of its site to the city or pay the city a 5% tax on construction costs, or else to provide a combination of both. Fortunately, an extensive amount of brownfield redevelopment has taken place in Toronto over the last half decade, especially in the area of residential redevelopment, which has helped generate funds and justify the need for additional green space. With regard to green space, the City of Toronto has been described as a "city within a park." with more than 1500 parks (over 8000 ha) (Christopher and De Sousa, 2002).

Toronto and other industrialized cities in Canada because of the gradual, but steady, migration of industries out of the city to peripheral greenfield areas since the mid-1970s, left the urban center with innumerable under-utilized or vacant industrial sites. The reasons given by both public and private sector stakeholders in Toronto for remediation and redevelopment these sites range considerably. Some of the key benefits pinpointed include reducing development pressure on greenfield sites, decreasing risks to public health and safety, restoring former landscapes, renewing urban cores, counteracting negative social stigmas associated with such sites, restoring the tax base of local government, and increasing the utilization of existing municipal services.

Despite such perceivable benefits, it is surprising to note that the management and redevelopment of brownfield sites in Toronto continues to be envisioned as largely a private sector responsibility, with provincial and municipal governments playing only regulatory and advisory roles. Currently, the government of Ontario is in the process of implementing brownfield legislation (Brownfields Statute Law Amendment Act, 2001, Bill 56), which contains provisions aimed at reducing the costs and the risks associated with brownfield reuse. However, there is no provision in the legislation for encouraging the creation of green space from such lands. It should also be noted that although the regulation of these lands is a provincial responsibility, the City of Toronto and other municipalities in Ontario are responsible for managing their own brownfield sites, but have limited financial resources and political authority to do so.

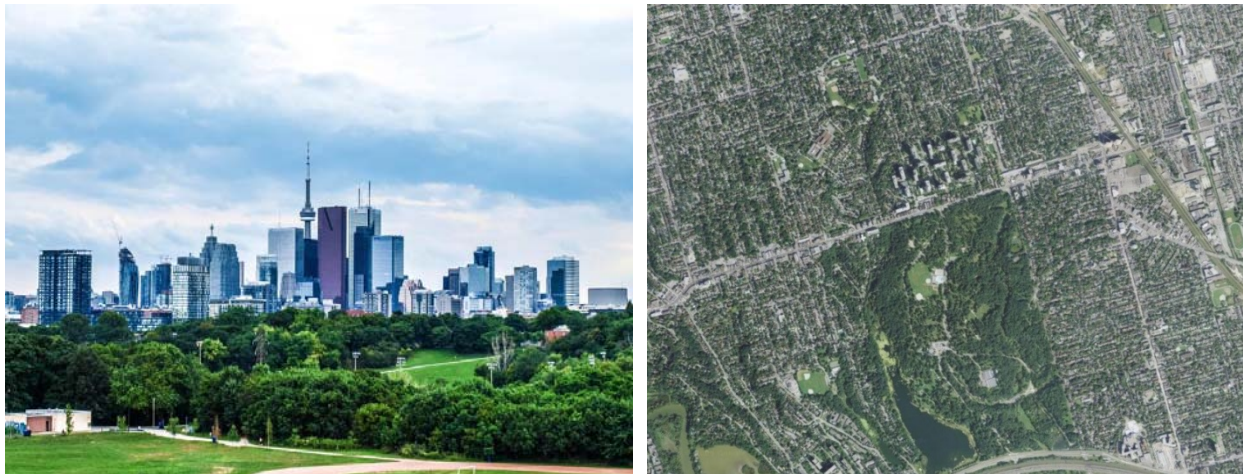


Figure 6 - Toronto - “city within a park” (source: www.urbantoronto.ca)

The Toronto “greening experience” makes it obvious that the redevelopment of brownfield sites constitutes a valuable opportunity for increasing green spaces in urban areas and, thus, bringing about benefits such as soil quality improvement, habitat creation, recreational opportunity enhancement, economic revitalization of neighborhoods, and so on. Such redevelopment, however, requires extensive public-sector involvement and is not inexpensive or easy to carry out. As the Toronto experience demonstrates, it requires a concerted effort among people from various domains in the social landscape of the city (from planners to community representatives).

5.1.2 Site analysis

The Distillery District starts its redevelopment in 2001 and was transformed into a modern pedestrian area with numerous cafés, restaurants and shops housed within heritage buildings. The area has been brought into the modern era through its commitment to sustainable development and combination of different use utilization, all while maintaining and respecting its historic value. Vibrant and welcoming neighborhood not only for local people but also for tourists has been successfully created as a result of arts, culture and entertainment.



Figure 7 - List of historic buildings (source: www.thedistillerydistrict.com)

After the reconstruction The Distillery District becomes large pedestrian area with open spaces and with general motor vehicle traffic restricted to streets and parking areas outside of the district's historic centre. Several large sculptures installed along the lanes enliven its streetscapes, three being on Distillery Lane and the final one at the parking area at the end of Trinity Street. Another primary landmark is the chimney stack atop the Boiler House complex. There are informal public spaces where pedestrians can relax and socialize, as well as formal patios for some of its coffee houses and restaurants. Thus, the Distillery District generates not only pedestrian traffic, but encourages pedestrians to spend time in its spaces.



Figure 8 - Distillery District before (right) and after (left) the intervention
(source: www.distilleryheritage.com)

Trinity Street is the widest street in the district and often functions as a public square where cultural events take place. The main thoroughfares within the district are Distillery Lane from Parliament Street running southeast to Trinity Street, Trinity Street from Mill Street at its north end to the motor vehicle parking area at its south end, and Tank House Lane from Trinity Street east to Cherry Street. The four borders of the Distillery District are Parliament Street, Mill Street, and the parking area to the south with the condominiums along Distillery Lane forming hard edges to pedestrians. The Distillery District is animated with a mix of uses: residential areas at Parliament and Distillery and at the eastern end of Mill Street up to Cherry, restaurants along Trinity Street, Tank House Lane, Brewery Lane, and Case Goods Lane, and education uses at the eastern end of Tank House Lane (The Distillery Heritage District, 2013)

5.1.3 - Historical overview

The Gooderham and Worts Distillery was founded in 1832 in the city of Toronto by brothers-in-law William Gooderham and James Worts, the Gooderham. During the 1800s, the complex of distillery was a huge manufacturing district and the largest distillery in the British Empire. Between the 1830s and 1890s, the firm of Gooderham & Worts grew from a small windmill in the wilderness to the largest distillery in the British Empire and, for a time, in the world.

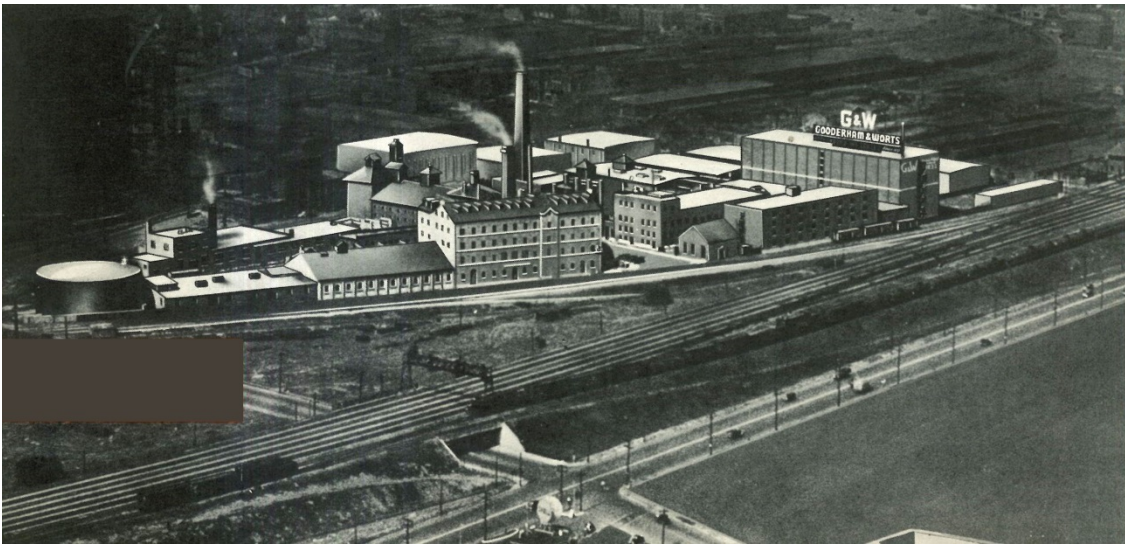


Figure 9 - Aerial photograph of the site 1937, Gooderham & Worts
(source: www.distilleryheritage.com)

Stone Mill & Distillery was opened in 1861. Designed by architect and engineer David Roberts Sr., the massive new building was constructed of Kingston limestone, served by a new spur line of the Grand Trunk Railway, and increased production capacity from 80,000 gallons of whiskey per year to over 2 million. The Stone Distillery is now the oldest and still the largest building on the site. In 1873, the Pure Spirits Complex of rectifying stills and storage space replaced cattle sheds that had been removed to the far side of the Don River. These buildings are notable for their expanse of wood and glass, which would blow-out and save the structures if a still exploded. Changes in legislation and taste marked the next period of development.

Beginning in 1885, government required alcohol to be aged for two years to protect the health of consumers. Meanwhile popular demand grew for the finer aged products, so more storage space was required. Between 1884 and 1891, tank and barrel rack houses were built along Mill and Cherry Streets, with 6-storey Rack House D at Mill and Trinity being the largest. All were designed by Roberts Jr. In 1895, the final Victorian building, the Fire Pump House, was constructed at the south end of Trinity Street (The Distillery Heritage District, 2013).

Dramatic change came with the Great War and subsequent passage of prohibition legislation in 1916. That year, the Gooderhams placed their distillery at the disposal of the British Government. After the Great War prohibition set in and business began to slow. Gradually, production at the Toronto distillery was cut back. The last whiskey was made in 1957. Then the antifreeze lines were phased out to facilitate the production of rum. Rum and industrial alcohols became the plant's main, and final, products. In 1987, Hiram Walker-Gooderham & Worts was acquired by Allied Vintners and three years later, on June 4, 1990, the last alcohol flowed from Gooderham & Worts. 158 years of industrial activity on the site was ended.

The future of the magnificent, but abandoned, industrial site was in serious doubt. A raft of heritage reports was commissioned. Various proposals were made. In 2001, the current owners decided to redevelop the site as an arts and cultural Centre, while retaining and adaptively reusing the Victorian industrial buildings. In 2001, the area was bought by Cityscape Holdings Inc. and in 2003 was unveiled as a pedestrian-only village entirely dedicated to arts, culture and entertainment. The area has about 15 art galleries, and several performing arts theatres. There is also build a sophisticated shopping district with interesting boutiques and a variety of restaurants and cafes.

The new owners refused to lease any of the retail and restaurant space to chains or franchises, and accordingly, the majority of the buildings are occupied with unique boutiques, art galleries, restaurants, jewellery stores, cafés, and restaurants. The upper floors of a number of buildings have been leased to artists as studio spaces and to office tenants with a "creative focus". A new theatre, the Young Centre for the Performing Arts, has opened on the site and serves as the home of the "Soulpepper Theatre Company" and the drama productions of nearby George Brown College (The Distillery Heritage District, 2013).

5.1.4 Economic management and government policies

As the production and operations of companies such as Gooderham and Worts closed their doors to manufacturing, the residue of their previous functions remained in the grounds through built form. Derelict or underused commercial and industrial facilities are often complicated by contamination which makes redevelopment of these much more difficult. Defined as “brownfield sites”, this site becomes the obstacles to the balanced development of the district. The 1990’s in Toronto marked a period wherein redevelopment of derelict or contaminated lands was pronounced, especially towards the end of decade, which coincided with a boom in the residential sector. The municipal and provincial governments responded to the reactivation of space through brownfield activity. The challenge was to prepare a site plan that would be economically viable, while also responding to the cultural and heritage value of the site.

In 1990, the City of Toronto produced an assessment of the urban design and heritage significance of the site in response to an application by the owners to redevelop and rezone the district from “General Industrial” to “General Use Area” (CTLUC²⁴, 1994: 131). A year following the study prepared by the City: “*Gooderham and Worts Toronto: An Urban Design Proposal*”, outlining a possible scheme for the redevelopment of the complex. The proposal argued that the redundancy of the buildings, coupled with the expenditures for their maintenance, meant that redevelopment was necessary to preserve the complex. The proposal sought to connect the district to the public realm by transforming the buildings into a mixed-use development through the basic act of removing the fences around the site. The proposal included three major elements: integrated design and the extension of the public realm, the provision of pedestrian spaces, and the provision of living and working spaces. Importance was placed on the Trinity Street corridor for its unprecedented heritage value and the remaining structures on site were catalogued according to their heritage significance. The plans projected the demolition and replacement of a number of buildings including the Case Goods Warehouse²⁵ and proposed that earmarking the demolition of thirteen buildings and the retention of only the facades of

²⁴ CTLUC: City of Toronto Land Use Committee (1994) Report No. 7. Toronto: City of Toronto

²⁵ *Case Goods Warehouse* (50,000 square feet) was built in 1927, and occupies a place of special importance in the history of the Distillery District. It was part of the final expansion of the distillery and currently is an Artscape building, which has converted the building into about 60 work and retail studios, offices, rehearsal and performance spaces.

others. The proposal came under early supervision for its alleged disregard for built form and its plans to push the density of the site beyond its threshold.



Figure 10 - Case Goods Warehouse today (source: www.thedistillerydistrict.com)

The most vocal protests came from Heritage Canada who described the proposal by the site owner as “disappointing” due to the destruction of built form²⁶. The majority of the opposition was directed at the incompatibility of economic development and heritage preservation, and emphasized instead the possibility for the site to be preserved as a publicly owned museum. The Toronto Historical Board initially opposed the proposal in December 1993. They had voiced some early reservations to the proposal, questioning the appropriateness of turning the site into a “festival marketplace,” but they broadly accepted the tenor of the redevelopment to preserve a large amount of the historical district²⁷.

²⁶ Heritage Canada was characterized in the press as being opposed to the proposal “based on simple misinformation” (Barber, 1994)

²⁷ Heritage Canada responded to the approval by noting that public interest in the historic landmark must remain a priority (Canada NewsWire, 1994)

Despite the opposition, the City of Toronto Land Use Committee voted unanimously to support a revised draft of the proposal which adjusted the projected demolitions from thirteen to two buildings and City Council approved the plans in 1994. Four by-laws were passed by City Council on May, 1994 to amend Part II of the Official Plan. The by-laws relaxed the zoning, set up heritage easements for the conservation of buildings, and designated the lands as an area of site plan control. The major objectives which guided the site-specific framework in 1994 reinforced the need for heritage conservation, comprehensive redevelopment as opposed to fragmented piecemeal revitalization, and a diversity of land uses. The aim was to ensure that the area would remain balanced and publicly accessible to site interpretation given its importance to the history of the city (The Distillery Heritage District, 2013).

The site was divided into five districts, and guidelines specific to each area were set to govern future uses and development. The Trinity Street Heritage district was designated as the focus of heritage resources (consistent with previous assessments and proposals), and all new development was positioned along the boundaries of the site (at the northern, eastern, and western limits) so as not to detract from the symbiosis and scale of buildings, the geometry of lanes and courts, and public access to the key remainders of industrial heritage. Under these by-laws and amendments, Council was granted authority to increase height and density limits in all of the districts, with the exception of the Trinity Street Area. The possibility of invigorating the local recessed economy with a 300 million dollar proposal was attractive to a variety of local actors. (Vanessa, 2010)

However, more organized forms of opposition to the proposal followed its approval, and extended the debates surrounding the balance between economic viability and heritage preservation / public access. Three private citizens groups (the Toronto Region Architectural Conservancy, the Community Heritage Project, and the Confederation of Resident and Ratepayer Associations) in 1995 led the “media war” for the preservation of District. The citizen groups were characterized as being extremist in the media, based on their apparent “interventionist tactics,” minority representation, membership struggles, and their use of terms such as “barbarians” to describe the developers. The redevelopment scheme and dismissed the appeal to by the law in May, 1995.

In the context of these reports, proposals, assessments, and appeals, what happened to the idea of developing the site as a publicly owned museum?

During the city-wide recession of the early 1990's, the possibility that the city could redevelop the site as a public good was dismantled. Cynthia Wilkey, current chair of the West Don Lands committee, and a member of the task force which produced the site plan for Gooderham and Worts, describes the economic constraints:

"We supported the extra density because we knew that there weren't public sector funding solutions for the Gooderham and Worts distillery. They were not going to find public sector dollars to turn that into a museum of whiskey...The only way that it could really be developed was to give (the developers) the kind of development density that would create the profit that was needed".

This is not to suggest that the committee bowed towards economic pressures: public sector constraints were a significant aspect of the conversations. Fiscal constraint at the municipal level is a product of major shifts in global capitalism beginning in the 1970's which led to entrepreneurial and neoliberal city policies. *"Considerations relating to the dual function of the site as a publicly accessible preserved district and as a viable financial endeavor frames much of the debates surrounding the project. It is important to point out here that while the planning process encompasses a set of guidelines and restrictions that place limits on development, how these limits are stretched and maintained in the assemblage of built form adds another layer to the production of space".*²⁸

While the planning process which began in the 1990's was formulated on measures of protection and was spurred by public-private relations (protecting the collection of buildings and their coherence as a narrative of history), the strategy, in practice, was exercised according to a top down re-visioning of space by the private sector. The fact that the site is privately owned and operated is significant as it frames the level of public engagement and consultation in the planning process. It also frames the nature of public access.

²⁸ Vanessa K. Mathews, Place Differentiation: Redeveloping the Distillery District, Toronto, Department of Geography University of Toronto, 2010

The economic recession of the early 1990s and the resulting crash in residential condominium prices and office, lease rates in downtown Toronto, delayed efforts to revitalize the district. Nonetheless, two residential condominium buildings were constructed on the periphery of the district during the late 1990s.

The *Official Plan* designates the Distillery District as a mix-use land parcel which is an area that includes a combination of land uses such as commercial, residential, entertainment facilities and art galleries. In order to provide additional details regarding the breakdown of the types of mixed uses in the area, the *King-Parliament Secondary Plan* is used to determine where the locations of the commercial, residential and other land uses are. In addition, the plan also outlines design guidelines and places emphasis on enhancing the existing historical buildings. The plan divides the 13 acre area into three different mixed-use designations.

In 2001, the site was purchased by Cityscape Holdings Inc. Cityscape's vision draws on a two prong approach: adaptive reuse (the retention, maintenance and restoration of built form), and culture-led revitalization (the inclusion of workers in the creative sectors). In addition to the focus on adaptive reuse and arts-led regeneration, according to the plan for the developers, three market condominiums were to be added to the site within five years as part of the residential component of development.

When a partnership dispute threatened to derail the redevelopment of one of Canada's most important historical sites, Cityscape Developments had decided to bring in a new partner. They chose DREAM²⁹, which acquired a 50% interest in the 13-acre Distillery Historic District. Once the acquisition was complete, DREAM set out to restructure, refinance and reinvigorate the Distillery District. DREAM immediately secured short-term financing for the project, and brought in their management team. This solid financial and organizational foundation paid off, and the Distillery District thrived. Soon all 323,000 square feet of commercial space were fully renovated and leased. Long-term financing was put in place two years later. DREAM also expanded the Distillery District by acquiring adjacent lands, and completed the first of two rezoning. The first rezoning unlocked the real value of the site: 873,000 square feet of unutilized commercial density that was converted into permission for two residential towers of 35 and 40 storeys and additional high-value retail space.

²⁹ *Dundee Real Estate Asset Management* (DREAM) is a diversified real estate investment and management company found in 1996.

Since the acquisition in 2003, the aggregate value of the project has tripled to over \$100 million. The existing retail and office space is virtually fully leased. Permanent financing has been put in place. The first residential tower – comprising 32 storeys and 383 units - was completed in the spring of 2009 and is sold out.



Figure 11 - Residential Tower (source: www.thedistillerydistrict.com)

The continued success of the Distillery District during a period of economic uncertainty in 2009 demonstrates the resilience of business plan. Land values in the vicinity of the Distillery District, which was formerly the heart of a derelict industrial area, have shot up. The long-delayed redevelopment of the West Donlands, a neighbouring precinct of former rail lands owned by the government, has finally been given the green light now that the Distillery District has made the area one of the city's most sought-after new neighbourhoods.

5.2 Manchester Industrial heritage

The case study of Manchester was chosen for its specific approach to resolving the problems of derelict industrial sites in the city historic center, which for many years represented a barrier to the balanced development of the city. Manchester was one of the first cities and symbols of the Industrial Revolution. It was centre of textile manufacturing production, trade and commerce throughout the era of Industrialization. During the last half of the 19th century large cotton mills were being built in Manchester and its surrounding towns. This meant that by the early part of the 20th century there were nearly 2000 mills in this relatively small region, and hundreds of warehouses to store raw cotton and finished goods. The region handled the substantial portion of the whole of the world's raw cotton and was supplying over 80% of the world's finished cotton goods.

As in the previous case of Toronto, Global Recession and world crisis led to deindustrialization and decay of many factories and whole industrial regions. Manchester suffered greatly from the Great Depression and the underlying structural changes that began to supplant the old industries, including textile manufacture. Mills started to close, the whole industry was in decline by the 1930s.

Because of its social, economic and environmental problems Manchester entered in period of decline which became more visible in the late 1970s. With the new management system, revolving around entrepreneurial strategies, the transformation of Manchester's city-centre rapidly began with a series of place-marketing strategies and high-profile image enhancement campaigns to promote the image of the "new city".

The reuse of the industrial built heritage in Manchester is a broader concept than simply preserving historic buildings. It actually goes a long way to the process of globalization as the emphasis on the regional and cultural identity is growing as a reaction to this process. The reuse of the remnants and memories of lost industries in the form of so called "heritage industry" acts as a key component in the process of re-imaging, marketing and selling of the city through the commodification of certain cultural aspects and the creation of tourist destinations with a specific set of characteristics. All process of redevelopment of historic industry building also is very connected to social modification and reintegration of the population in the formerly abandoned neighborhoods.

5.2.1 Reuse of Industrial Heritage of Manchester

The widespread economic restructuring and the long recession of the 1970's led Manchester into the era of deindustrialization, characterized by severe economic decline and loss of employment and social problems. In many industrial countries traditional manufacturing industries went into decline or vanished while the service industries have grown. Alongside the changes in economic structure the changes in urban structure also made dramatic social, economic and environmental impacts³⁰ on cities. The suburban expansion had caused the decentralization of production, commerce and people from the core of urban areas. The physical infrastructure of these cities mainly lost their function and became obsolete. Derelict buildings and their environment had a negative impact upon economic and social aspects. Manchester was no exception. Cotton mills, warehouses, canals, wharves, railway stations, merchant's offices and department stores lost their function and became abandoned or underused. The solution to this dereliction was usually demolition and redevelopment with the enthusiasm for the ideals of post war modernism. The aim was to sweep away the city's obsolete Victorian infrastructure and replacing it with the new buildings and structures, usually shopping centres, offices and roads of the twentieth century.

Therefore the physical symbols of the Industrial Revolution became associated with the negative aspects of the past such as unhealthy and poor living and working conditions, overcrowdedness and pollution. Old industrial buildings were seen inefficient to meet the standards of modern buildings. They were also in a state of decay and suffering from low maintenance and vandalism as well as becoming hot spots for criminal activities. The attitude towards these buildings as well as other historic buildings began to change in the 1970's. It was a time of growing public antipathy to the results of post-war planning policies mainly concerned with demolition and large scale redevelopment.

With the Civic Amenities Act of 1967 and the 1974, Town and Country Amenities first conservation areas, "areas of special architectural or historical interest" were designated to stop the destruction of historic urban fabric. In these areas, all buildings would require consent for demolition.

³⁰ Lawless, P. (1989), Britain's Inner Cities, Paul Chapman Publishing Ltd., London; 23-40

The focus of conservation gradually shifted from preserving particular buildings to the conservation of whole areas with relatively more ordinary buildings such as industrial and commercial buildings. The year 1975 was crucial for the recognition of industrial heritage. The Council of Europe declared 1975 the European Architectural Year in order to raise public awareness of the need to protect architectural heritage. In addition “Save Britain’s Heritage” was established in the same year by a group of historians, architects, journalists and planners. Their aim was also to bring people’s attention to the increasing destruction of the past. The other new argument in conservation was the concept of “adaptive reuse”. Unlike the previous preserving policies concerned with accurate restoration and limiting change, this new concept supports the idea of change. With this new approach, an old building would no longer be considered as an art object; instead it has become the product of a whole socio-economic system³¹.



Figure 12 - Great Northern Railway Warehouse
(Source: www.penninewaterways.co.uk)



Figure 13 - Castlefield
(Source: www.penninewaterways.co.uk)

Although the shifts in urban planning and conservation policies in the 1970’s significantly halted the demolition of industrial built heritage, the recognition of cultural, social and economic values of industrial buildings rose to prominence in the concept of urban regeneration in the 1980’s.

³¹ Cantacuzino, S. (1989) Re/Architecture: Old Buildings / New Uses, Abbeville Press, New York; 1-9.

In this process of urban development of the city, industrial heritage, the city's biggest historic, cultural and social identity, has taken important roles. New functions which can nurture the new types of economic activities have been given to the redundant industrial buildings and sites rather than demolish and redevelop as would have been the case in the 1960s and 1970s. In the transformation and redevelopment it was built many cultural quarters, the railway stations were converted into museums, the canals were cleaned up, mills and warehouses have been converted into high quality flats, shops, cafes, cinema (Great Northern Railway Warehouse). Castlefield, the country's first Urban Heritage Park designated in 1982, was the first target. The first reuse project in this area was the conversion of the Liverpool Road Passenger Station terminus into the Museum of Science and Industry. Its first phase was completed in 1984, soon after; the Lower Campfield Market was turned into the Air and Space Gallery. In 1986 Central station was converted into an exhibition centre. These successful and award winning projects were the first schemes of reusing industrial buildings in the area in the partnership with the City Council and private sector bodies.



Figure 14 - Manchester Mills before (left) after (right) the reconstruction
(Source: www.visitmanchester.com)

5.2.2 Urban policies of Industrial Heritage in Manchester

The potential opportunities linked to reusing industrial heritage came to the fore more than ever in 1990s as urban sustainability was gaining a significant place in British urban policy. European Council was recommending that the priority should be given to unused or underused industrial land instead of creating new development on greenfield sites³². It has become crucial to use land - the main resource of urban fabric- carefully and efficiently.

The 1990s new urban policy in terms of “*urban renaissance*” was more interested in reinvigorating urban areas to make them both desirable and environmentally sustainable. It was also interested in social inclusion and improving society and community³³. One of the main recommendations was to create that kind of urban living as well as to upgrade the existing urban fabric. To achieve that, derelict and brownfield sites in cities was advised to be used more efficiently.

With this new orientation more towards urban sustainability, brownfield sites and vacant buildings have become the key targets to develop more housing and create more compact and ecological cities. 60% of new housing is planned to be built on brownfield sites including derelict industrial sites³⁴ (Residential use as well as mixed use developments has been regarded as key factors to create a more sustainable urban living.

The new policy which is closely related to the New Urbanism movement and the concept of smart growth, favors walking, cycling and public transport to reduce car dependency and development on greenfield sites. The emphasis on residential use alongside commercial and leisure uses or mixed uses has grown to make city centres more desirable and attractive. The introduction of a mix of uses - and a complementary mix of users and activities is considered crucial to bring people back to these areas to live, work and socialize. Mixed development where housing is a major component contributes significantly to the target of transforming urban areas into diverse, vibrant, compact, safe, sustainable and attractive places. This also stimulates the evening/weekend economy, and prevents “dead” office zones. Residential use

³² Elkin, T., Mc Latent, D., Hillman, M. (1991) Reviving the City: Towards Sustainable Urban Development, Friends of the Earth, London; 22-4.

³³ Jones P., Evans, J. (2008) Urban Regeneration in the UK: Theory and Practice, Sage Publications Ltd, London

and historic buildings have become the key elements for this new vision of urban living in a more “European city” mode.³⁵

Alongside positive outcomes of reuse schemes in terms of conservation, urban regeneration and sustainable urban development there have also been controversial issues emerging in this process such as gentrification, social and spatial equity. Recent British urban policy mainly concerned about the revival of inner urban areas and bringing people back into the towns and cities appears to promote invisible process of gentrification as the savior in troubled English inner cities³⁶. There has been a massive housing investment in the city centre to accommodate the new residents and to attract even more into the area. The major part of this investment is aimed to develop around high density, multi-storey and mixed-use buildings.

The large scale of development of usually high-end residential units, along with offices, retail, restaurants, and other forms of entertainment spaces and employment in prestigious white-collar occupations in the service sector can be seen as parts of the gentrification process. The transition, experienced in the city centre from an industrial society to a post-industrial one verifies the arguments about gentrification made by Smith and Williams (1996). They see gentrification as part of a profound economic, social and spatial restructuring.³⁷

The main commentary elicited by various scholars on the transformation of old industrial buildings where the primary function used to be manufacture goods rather than consume is also evident in Manchester especially for buildings reused for cultural and leisure purposes. What has been observed during this study is that the attempts to market the city as a site of leisure and consumption through commodification, marketing, and consumption of its heritage have actually elided the city's industrial past in favor of a sanitized vision of a post-industrial city.³⁸

³⁵ Coupland, A. (1997) Reclaiming the City: Mixed Use Development, E & FNSpon, London; 3-16.

³⁶ Lees, L. (2003) Visions of 'Urban Renaissance': The Urban Task Force Report and the Urban White Paper, Urban Renaissance: New Labour, Community and Urban Policy, The Policy Press, Bristol; 61-6

³⁷ Smith, N., Williams, P. (1986) Alternatives to Orthodoxy: Invitation to a Debate, Gentrification of the city, ed. P. Williams, Allen & Unwin, London; 5-7

³⁸ Atkinson, D., Cooke S., Spooner, D. (2002) Tales from the Riverbank: place-marketing and maritime, International Journal of Heritage Studies 8 (1) 25-40.

5.2.3 The Ancoats Urban Village Project – Manchester City Centre

Ancoats is internal urban area in the northern part of Manchester's commercial Centre in North West England, and located almost equidistant between the city's two main railway stations; Manchester Victoria and Manchester Piccadilly. It is bordered immediately to the east by Oldham Road, to the west by the Rochdale Canal and to the south by Great Ancoats Street. The site is almost rectangular in plan (600m x 350m) with a grid iron pattern of streets. It contains one of the largest concentrations of listed buildings in the City of Manchester with some of them dating back to 1790. Historical records show that at its industrial height, the site accommodated up to 13,000 people both working and living in the area.

The location of Ancoats is strategically important since as well as lying so close to the city centre, it also sits between two of Manchester's districts that are currently undergoing both physical and economic changes and redevelopment.

From its origins as the birth place of the industrial revolution, the Ancoats area has suffered economic decline from the 18th century onwards. This decline continued until the 1990s. As a result of this decline, a strategy for regenerating Ancoats, called the Ancoats Urban Village Company was established in 1996.



Figure 15 – Ancoats, commercial center and apartments (source: www.english-heritage.org.uk)

5.2.4 Management process of redevelopment of Ancoats

As a former large manufacturing area of Manchester in the midst of frequent social and economic changes in the world, Ancoats in 20th century enters in period of major crisis that leads to a gradual decline. The substantial economic activity generated by a large number of mills was halted by the recession in the cotton industry in the 1930s. Thereafter, the prosperity of the mills declined steadily, and the only new industry to establish itself in Ancoats was newspaper printing. Ancoats, like all its neighborhoods, became very run down and notorious for deprivation and crime. The 1960s witnessed further decline as, during the mass clearance of the area's terraced homes, the population was re-housed in the north and east of the city. The mills, attracting decreasing rents, fell into disrepair.

During the early 1960s and the relocation of most households to overspill estates many new houses and flats were built in Ancoats by the local council. Inevitably, the local area's population was lower by 1970 than it had been a decade earlier, as the new housing developments were more spaced out, and some former residential areas had been redeveloped for commercial and industrial use.

With government policies managed before the 1960's, led to mass destruction of Ancoats derelict industry buildings. Demolition of historic industrial buildings, including cotton mills, continued into the 1980's, but alongside this trend there was an increasing awareness of the heritage value of the Manchester region's industrial past. This was further underlined by the realization by the commercial community that much of the "new era" development, which occurred in the 1960's and 1970's within UK cities, was of much poorer quality, architecturally unattractive and of less adaptability than many of the buildings, which were being demolished.³⁹

However, it was not until about 1980 that any of the Local Authorities in the Manchester region started to overcome their prejudices and to realize the quality and historical and social importance of the industrial heritage of the region, particularly of its cotton mills in Ancoats. Of course, by this time, some 60% of all the cotton mills that had been constructed during the previous two centuries had been closed and most of them demolished during the period 1951-

³⁹ Brian Clancy, Conservation and Renovation of Industrial Heritage Buildings: Some Recent UK Experience in the Manchester Region, Manchester

1966, including some of the most architecturally impressive examples. A further 20% were closed and demolished during the next 20 years.

Under this pressure Local Authorities in the Manchester started to carry out hasty appraisals of what was left of the mills and warehouses in their area. Unfortunately, it takes time to change the direction of any built environment economy and this is particularly so when the public sector, in the form of government and regional administration are involved as the principle motivators of change. Bureaucracy and the conflicting pressures on scarce public financial resources are the main problems. Dealing with an actual problem in whole area of a town is a truly difficult task. But such an enterprise was embarked upon in Manchester in 1996. The task was to resurrect a 22 hectare site of derelict buildings within 1km of the centre of Manchester itself. The area was called Ancoats.

The first step was to form a joint enterprise between the City Council and one or more independent public funded bodies. So a development company "*Ancoats Urban Village Company*" and an independent preservation trust (Ancoats Preservation Trust) were formed to partner with the City in the project. It was the job of this consortium – particularly the Company and the Trust - to tackle the problem of bringing the Ancoats area back to life and, as well as preserving an important part of the City, to also make it a vibrant and commercial successful area. The task has been started and much progress has been achieved, but it is far from completion.⁴⁰

Unfortunately, during the 30 or 40 years preceding the commencement of the project, many of the buildings within the boundaries of the site had been demolished because they had become unsafe, or the owners feared that their building might be "Listed" by the authorities. "Listing" would officially categorize the building as being of national historical importance and would legally require the owner to maintain it – so some were demolished before 'listing' could be implemented. These cleared sites were then left vacant or are at present being used for low quality shed type warehouse storage and manufacturing. Despite this neglect and demolition, the site still contains a great number of protected buildings.

⁴⁰ Miller, Ian, Wild, Chris (2007) *A & G Murray and the Cotton Mills of Ancoats*, Oxford Archaeology North, ISBN 978-0-904220-46-9

Interestingly, among the buildings on the site are two of the oldest industrial buildings in Manchester and indeed in the UK, Murrays Mill built 1798 – 1806 (with 1.5 hectares of floor area) and Royal Mills built 1824 and variously extended at different times up to 1918 (with 2.7 hectares of floor area).

Almost all land and buildings in the area were privately owned. Their condition was poor or, in the case of the modern buildings, it was of very basic quality. In commercial terms the buildings (old and new) were of little value but many of the old ones were of immense social and historical value.

Persuading the owners of dilapidated historical buildings to spend money on them was clearly impossible – a problem which exists throughout the UK. The national organization dealing with conservation and preservation is English Heritage. For tourism and political reasons English Heritage tends to spread its patronage among smaller market towns and rural villages and not on the larger urban areas.

When funds do become available from national funds for historical buildings in cities and large towns, it will normally only be to pay for “enveloping” buildings to make them basically weather tight (i.e. for the making good of walls, roofs, windows, etc.). Heritage grants are given on a 50/50 basis with the owners making an equal contribution to the public grant.⁴¹

With little or potential use seen for the properties after ‘enveloping’, owners are rarely encouraged even by this offer. As, in addition to the enveloping costs, the whole of the internal refurbishment and fitting out costs must be borne by the owner. The owner then has to find tenants or prospective purchasers – residential, commercial or industrial. Further, the proposed usage must comply with the designated Town Planning usage for the area – although in most regeneration schemes, local government Town Planners tend to be reasonably flexible as to usage, provided environmental and historical considerations are catered for.

“Manchester successfully applied for and obtained a World Heritage Site designation for the Ancoats area. Manchester's bids for the 1996 and 2000 Olympics caused speculative buying of property in Ancoats in the early 1990s. When the bids failed the buildings were abandoned and decay accelerated. It is said with reasonable authority that one complex of

⁴¹ Brian Clancy, Conservation and Renovation of Industrial Heritage Buildings: Some Recent UK Experience in the Manchester Region, Manchester

buildings was progressively assembled for a total cost of £1.2 million. This far exceeded the real value of the buildings themselves pre 1990, although being of great historical importance, the buildings were derelict and un-useable. By 1998 it was estimated that 80% of business floor space in Ancoats was vacant.⁴²

Speculators decided to concentrate on the Ancoats area because of its close proximity to Manchester City Centre and the perceived likely demand for hotels, sporting and other facilities to accommodate the games; also because of the substantial amount of money likely to be invested in from government and private enterprise sources. Sites and buildings were bought and sold for ever increasing prices over a period of a couple of years. In the event, Manchester did not get the Olympic Games and the procedure for awarding grants for regeneration purposes of historical buildings was changed. This made obtaining such grants a more complex procedure.

The procedure for inspecting, assessing and categorising historical buildings is in itself both expensive and time consuming. After it has been completed, it is then necessary to present appropriate renovation/ conservation proposals to the City Council, a number of interest groups, the funding organizations (both public and private) and also to the owners. In the Ancoats Project, the first decision made by the Trust was to concentrate on buildings that were smaller and therefore less expensive to rebuild.

According to the policies of protecting heritage in United Kingdom up to 50% grants are available to renovate listed buildings and buildings of historical importance. However, and to discourage speculators, the rules have been changed in recent years, so that only “original owners” of buildings can - in some instances - claim these grants. It is now necessary for buildings to have been owned for a minimum of two years and for the owners to demonstrate that they are not speculators, but that they have a serious intention of developing the site for specific purposes. As many of the owners do not have this intention, they forfeit the opportunity to get the grants, making their financial predicament even worse and the incentive to carry out basic maintenance negligible.

⁴² *Ancoats Urban Village Annual Report 2006/07*, North West Development Agency, September 2007, Retrieved 2008-08-24

The most recent development of the regeneration of Ancoats has been to fall back on the available legal procedure of obtaining Compulsory Purchase Orders (CPOs) against owners who will not renovate their properties or sell them to the Development Company to do so. At present this applies to about 35% of the property in the Ancoats Village area.

Those owners who are not prepared to show positive interest in either selling their properties for realistic market value prices to those who will develop them, or who will not themselves develop them, will have their properties purchased compulsory but legally by the Ancoats Village Company and at their genuine market value. The properties will then be renovated by the Council/ Development Company/ Trust and then offered for sale at a “market price” back to the original owner or to any other person wishing to purchase.

Unfortunately the sites where the order is likely to be imposed are spread throughout the Ancoats area making the Compulsory Purchase Order operation more complex for the Development Company. *“A total of about 70 individual sites of various sizes are involved in the CPO. In 2000 the government accepted the 250 millions of £ New Islington Project to redevelop a 31 acres section of land between the Rochdale and Ashton Canal. To assist regeneration by preventing speculative purchase of land the North West Development Agency made a compulsory purchase order of land in the area. A target population of 15 000 by 2010 was set for the Ancoats area. The first major residential development in the area was MM2 Apartments Manchester. This former ice cream factory site is now home to 90 apartments which were completed in 2012, and is now just one of several developments in the area”*.⁴³

⁴³ Miller, Ian, Wild, Chris (2007) A & G Murray and the Cotton Mills of Ancoats, Oxford Archaeology North, ISBN 978-0-904220-46-9

5.3 Industrial Heritage in Terrassa

Terrassa is a city in the east central region of Catalonia, in Spain. In the 19th century the city played an important role in the Industrial Revolution of Spain, and today there is a major Industrial heritage as a result of the city's importance at that time. Terrassa, is one of the highlights of the history of Urban Industrialization in Europe and today gives great efforts to maintain and improve their cultural legacy. In this process, the focus is on the industrial heritage and in the same time is their guide for the city's prosperous future.

In Terrassa, this situation has partially marked the process of urban transformation of the city in the last half century. Numerous traces of Terrassa rich industrial history, especially a textile industry, live today in a modern and active city, which has managed to make a valuable heritage of the past. The industrial heritage of the city is formed by industrial buildings, factories, warehouses, worker's dwellings, service buildings, the railway station, the workers streets etc. and together with the rest of cultural heritage makes a unique modern city that respects its past. The industrial heritage of the city has defined its image during the last 150 years. And this heritage excels especially for its artistic quality than in other industrial towns and mostly falls within the modernist architectural movement.



Figure 16 - Masia Freixa (own source)



Figure 17 – “Chimenea” industrial symbol of Terrassa (own source)

The analysis has been based on the study of the six instruments and actions: claims and records of General Plan 1983 (Terrassa City Council, 1983); catalog buildings historical interest; National Museum of Science and Technology of Catalonia; protective Plan historical and artistic; Strategic Plan of the city of Terrassa and Municipal Urban Plan. From previous work, it is considered that this action had a greater impact on the renovation and management of the industrial city.

5.3.1 Historical overview

In the 19th century the city played an important role in the industrial revolution, specializing in woollen fabrics, and today there is a major Modernista legacy as a result of the city's importance at that time. Particularly notable Modernista buildings include the Masia Freixa (1907), the Vapor Aymerich Amat i Jover textile mill (1907) (now the Museum of Science and Technology of Catalonia)

Between 1959 and 1975 Terrassa lives an extraordinary economic expansion in the industrial sector and the service, which is accompanied to the 1960's for a strong immigration growth. However, industry and textiles in particular, starts to face difficulties that will be accentuated to middle 1970s. At that time the textile sector faces an unprecedented impact. The oil crisis and the transfer of the textile industry to emerging countries will disappear in ten years most companies have employed generations of workers in the city. The decline of industry , begun in 1975 and not completed until 1984 , and even in the nineties some companies that survived will be forced to close . This raises the opportunity and need to intervene at a time when active still find some factories in the city , witness to a process that will soon become part of the past, the cultural heritage of the city. The first considerations around this heritage appear linked to the historical and artistic value of some goods.

In Terrassa the end of the crisis is seen to coincide with the drafting of the 1983 General Plan and the recent establishment of the Municipal Planning Department in 1981. The relocation of industrial activity to polygons and renewal of obsolete tissues in the city center open envelope and qualification process that involves the renovation and transformation of the industrial heritage.

5.3.2 Urban politics and management process of protecting the industrial heritage in Terrassa

The development of urban strategies and new methods of intervention, strict actions on protect industrial heritage have been a crucial factor in the improvement of the cultural and heritage value of Terraassa. For many years in the past century the industrial heritage has not received sufficient attention from the building protection law. In the last decades the city of Terrassa has worked successfully to combine renovation and conservation tools of management for its industrial heritage. In this long process the city has implemented and improved conservation and heritage management strategies to improve the city's cultural ambient.

From 1968 a first instruments for heritage conservation arise. After a first catalog promoted (1968) and rejected at local level (1971), the first inventories and listings of recognition of the heritage of the city are part of programs for national and regional level: catalog of buildings and urban environments artistic interest archaeological typical and traditional (1968); chips buildings less than 100 years (1975), historical, artistic and landscape classification of Terrassa (1976) inventory records of the European Cultural Heritage Protection (1977); inventory sets and buildings of interest throughout the Spanish State (1979), and open architecture Contemporary Spanish Stock (1980).

The elements of industrial heritage listed in these listings as isolated within the tissue, without guaranteeing any real protection of the objects. Its valuation is made from a historical-artistic vision linked to the style and / or the author, which leaves out many elements. Still, the architectural value of the works of the modernist period and the very remarkable work of architects Lluís Muncunill and Melcior Vinyals, among others, induce the recognition and inclusion of many and varied elements of the industrial past of the city. The contributions made by the experts in these listings feel solid foundation for the subsequent management of heritage and are the basis for the first legalization mechanisms incorporating the Land Law of 1975 (Farina, 2000).

At this stage, most efforts are united, both public (state) and private to raise awareness and ensure the preservation of the elements of the industrial heritage of the city. Despite many efforts, disappear during this time works of great value and representativeness, as Escoles Torrella Group (1968) or Duran and Garcia Brothers or Humet Germans (1975) stores.

In the period from 1980 -1990, one of the main goals of urban policy is complete, equip and qualify the space of the consolidated city. The entry of democratic councils promotes new intervention guidelines that seek to improve the quality and urban regeneration of tissues consolidated.

Local government plays an important role in the drafting of normative acts regulating activities on heritage, recognizing its value. In parallel with the drafting of the Heritage Act (1985), which first introduced the concept of cultural heritage in the Spanish legislation, the General Plan (1983) provides some initial reflections on the historical and environmental value of industrial heritage and its role in urban renewal . This reflection includes both elements of cultural value, as the only representative of the historical past of the city. In seeking to reconcile renewal with heritage conservation, the document recognizes for the first time explicitly industrial heritage and unique. The catalog accompanying the General Plan 1983 (Catalogue of historical and artistic buildings of interest 1981) points thus the basis for the drafting of a future Special Plan and recognizes, in a pioneering act in time, a new field of recognition these goods (Sara and Joaquin, 2013).

Public policy guides the first performances of reusing items was at this stage. Just before the drafting of the Special Plan for artistic-environmental-heritage –historical Protection of Terrassa (Terrassa City Council, 1986), the inauguration of mNACTEC (Museum of Science and Technology of Catalonia) was in 1984, and was promoted by the regional government, marks a milestone in the configuration industrial image of the city. The new use of the former factory Aymerich Amat as headquarters of a network of museums opens a new line of intervention and in turn confirms the role of the city as a place of reference in raising awareness and disseminating the value of memory and heritage of a rich industrial past.



Figure 18 - Museum of Science and Technology of Catalonia (own source)

The social heritage protection as well reuse, preventing their gradual loss is the goal of implementation of interventions in this period. After the successful initial experience reuse of industrial space (mNACTEC), the City Council repeated the experience betting on the reuse of several buildings in the historic center. In its task of filling the high deficit and infrastructure endowments, industrial buildings in the city are suited to the new requirements and equipment. The size and type of buildings textiles facilitate reuse. Particularly significant in this process steam interventions Amat (1987 Didó Square, expanded exhibition hall and municipal offices Muncunill) , Factory and warehouse Poal Marcet (1992, The School Board Naspa and municipal education) and Factory Hilabor (1994, University) , projects that are widely disseminated at the time. These projects exemplify singled out three lines on the intervention of the industrial heritage of the city. On the one hand, the intervention of the Factory and Warehouse Marcet Poal exemplifies the unique architectural intervention and recovery of a building of artistic value. Furthermore, the creation of the University reuses a modern industrial building in the expansion of the city, in a singular functional intervention. His recovery exemplifies the first intervention in an industrial building without remarkable artistic value. Finally, the Vapor Amat first intervention that modifies the structure of city occurs. In the reorganization of the old steam (urban areas) public space element is introduced as active in the redevelopment and reuse of the singular element .Processing operations obsolete industrial fabrics are produced for the first time at this stage. The instrument used is the Urban Improvement Plan. In all, both led by state actors (except Steam Amat) initiatives, the design of the renovation project is based on three

foundations : the complete demolition of the built assembly , sorting according to guidelines of the Special Plan with alignment a vial, and the continuity of the facade replaced recovering tissue boundaries and recovery asleep chimneys, if any, resulting from the protection provided by the Special Plan as a reference of the industrial past .

Thus, effective conservation of industrial heritage only occurs in this period individually and isolated from its context. However, the uniqueness of the interventions promoted by the session, which gets almost all the old industrial building and the public service of the same, introduces a new city next to the formula. In the case of tissue renewal, more than a third of the proceedings involving the total demolition for renovation of industrial enclosures, without recalling a single element and recover, in other cases, the chimneys of the old vapors as identity symbol, the result of the incipient appreciation of what was the industrial past of the city.

After the Olympic Games held in Barcelona 1992, a new period of crisis marks the beginning of a new stage. Next strategic document that was adopted was a Strategic Plan 1993. At this stage all design strategies and protection of industrial heritage evolve unevenly. The urban interventions represent almost half of the actualization in the city. All interventions of industrial buildings was equally divided between conservation initiatives and dissemination led by the City and the recovery and reuse of listed buildings by private agents.

As it has been exposed, the successful recovery of industrial heritage needs to combine different types of management: reconnaissance actions, claims, planning, protection, reuse and transformation. Urban management policies should integrate urban transformation and recovery of assets in an economically viable and socially effective. As the conclusion it may be pointed out that the leading instruments should be developed more and constantly and to guide the actions and define criteria of interventions.

5.3.3 Public evaluation and survey

As part of research work it was carried out a survey of the historical heritage of city of Terrassa and its impact on the city economy and cultural offer. The survey questions were the primary method of gathering information of visitor perceptions of local heritage, in order to see how local people and habitants value the Terrassa history and industrial heritage and its economic potential.

Objective of the survey is to provide information on the impact of the industrial heritage of city of Terrassa and its impact on the economy of the city. Citizen feedback helps to get a clearer picture of the role of protection and promotion of cultural heritage and the possibility of the development for tourism in the city.

The survey consisted of fields related to three groups: importance of historical heritage and its benefit to district, social and economic development of the place. The surveys was developed and applied to public, private and social organizations, people from the neighborhood of Terrassa which aim to value historical, economic and social elements of the Industrial Heritage of the city.

The surveying was carried in the city center of Terrassa in Central Street Rambla d'Egara (figure) form 10:00-14:00 all days of the week including the weekend. Survey was performed from 22/12/2013 to 10/1/2013. Study included residents of Terrassa of all ages. Total number of completed survey forms is 300.

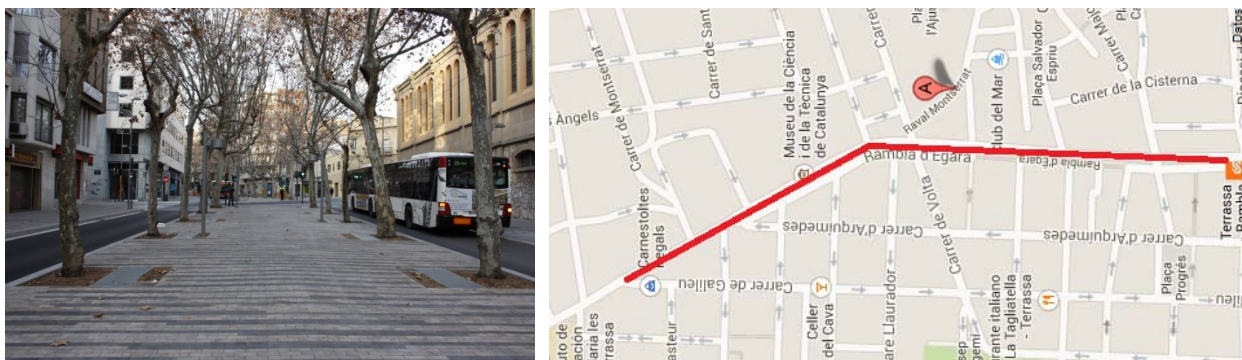
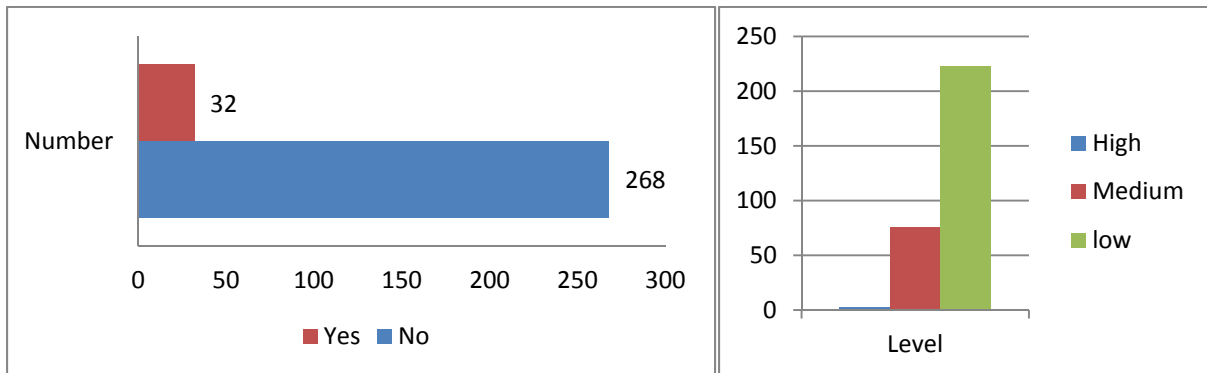
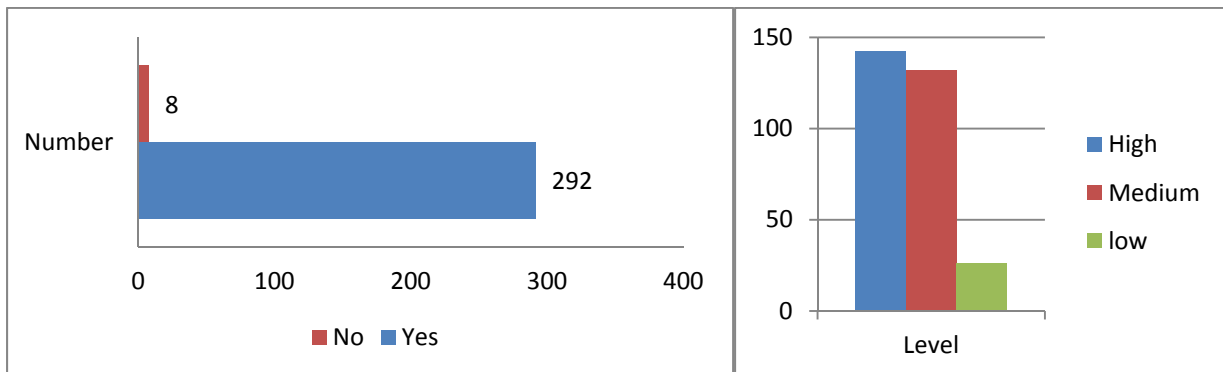


Figure 19 – The route of the survey (own source)

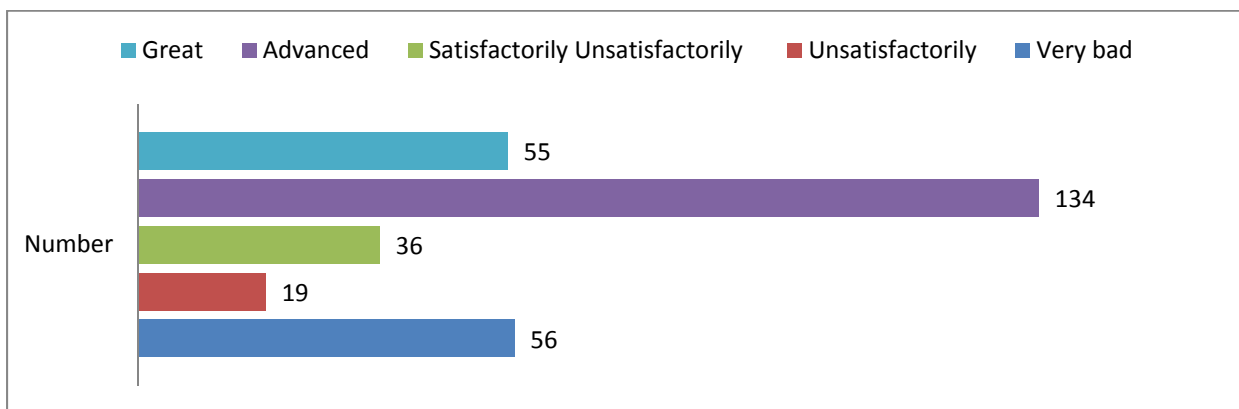
Question 1 - Do you think that is affected (endangered) the industrial heritage of the city? At what level? (*High – very affected; medium – average affected; Low- minimum affected*)



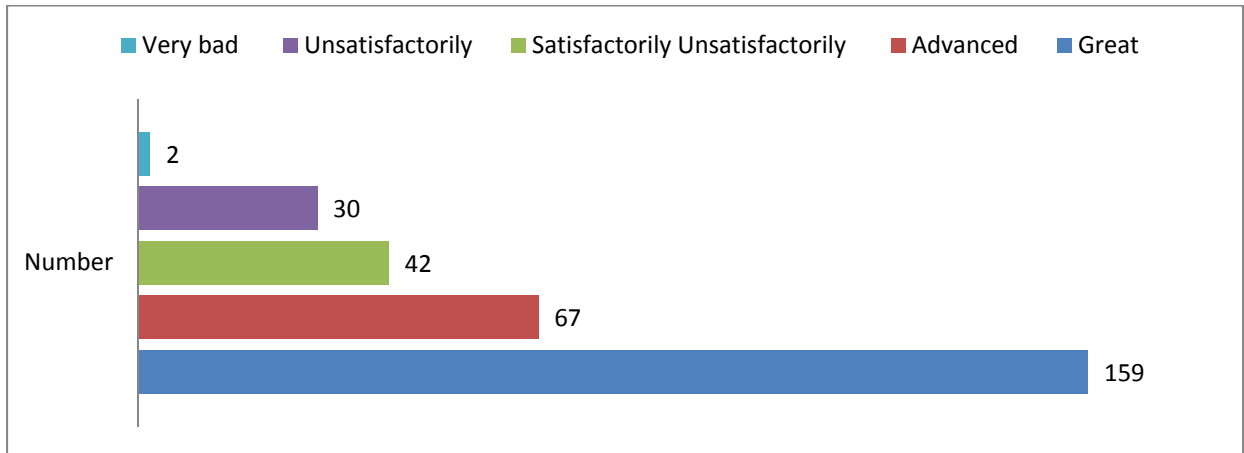
Question 2 - Are you satisfied with the way of the use and availability of the industrial heritage of the city? At what level? (*High – very satisfied; medium – average satisfied; Low- minimum satisfied*)



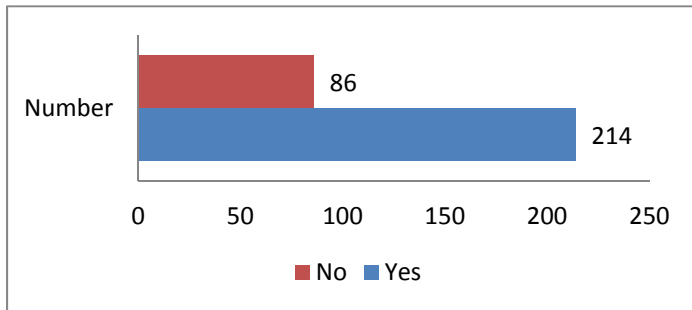
Question 3 - How do you evaluate the economic outlook in the city?



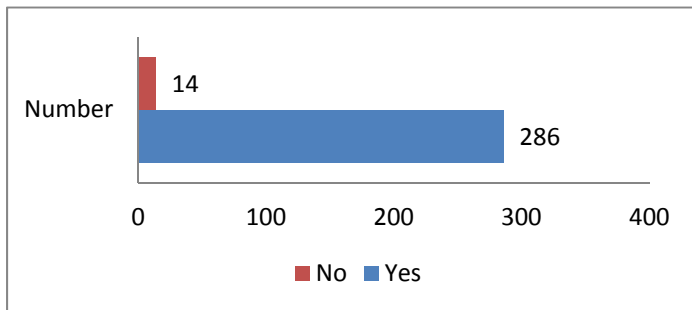
Question 4 - How do you evaluate the protection of industrial heritage of the city?



Question 5 - Do you think that the industrial heritage is improving the city's economy?



Question 6 - Do you think that the industrial heritage is increased the potential for tourism development in the city?



The main goal of this research is to analyze the features and evolution of Terrassa's industrial heritage management and to evaluate how urban management integrates heritage conservation and city renovation strategies. The research confirms a strong evolution from individual actions to contextualized urban renovation in a plural process which has still a long way to go.

Overwhelming number of respondents confirmed that the industrial heritage of the city was not threatened or affected. People have agreed with the fact that the industrial heritage of the city is in good condition, preserved and good protected. Extremely low number of respondents did not agree that the industrial heritage sufficiently protected with a small number of negative comments most with the topic of certain number of buildings destroyed in the past. Based on the processed results, in the opinion of surveyed citizens, industrial heritage in the city and its available to anyone who wants to visit and enjoy in the cultural historic richness. Research furthermore leads to the perception that the majority of respondents see the economic benefits from industrial management and the development of tourism in the city glare associated with it.

Some of the conclusion of investigation leded in Terrassa:

- There are observed the positive developments in the recognition of industrial heritage by public and government.
- The characteristics of the industrial heritage of modernist style, the large number and diversity of industrial elements and the fact the city hosting headquarters National Museum of Science and Technology of Catalonia have formed the basis of early recognition and awareness for the conservation of the industrial heritage of the city.
- It was found very good examples of public and private reuse of industrial heritage.
- The recovery of the industrial landscape from the past is very visible, but insufficient conservation representative and symbolic of "chimneys", has been a significant tool for the population to valuate the industrial past of the city.

Chapter VI: Conclusions

The physical reintegration of abandoned and derelict sites, located into the city, has positive consequences beyond the sites themselves and beyond their physical dimension. The idea being that these urban transformations, because of their inherent characteristics that differentiate them from other natural non-urbanized sites “Greenfield” has an enormous potential to positively affect their larger social, economic and environmental contexts.

Brownfield interventions represent an opportunity to enhance urban sustainability and quality of life through the reuse of derelict urban sites, usually degraded environmentally, economically, and socially. The concern about the presence of derelict and underused sites within urban areas, together with that about the current need for a more sustainable urban design and planning in an increasingly urbanized world, leads to the focus on the intervention on brownfields located in urban areas as an opportunity to enhance sustainability and quality of life in the city.

The literature has revealed how brownfields interventions provide a specific opportunity to enhance social integration and cohesion between the existing community and new residents coming from other parts of the city. There are also a variety of opportunities to contribute to the social regeneration of these derelict areas by alleviating issues that may concern the community, such as particular needs of open space, housing and services; unemployment and the opportunity to create new jobs; health risks due to the environmental state of the site; or the future identity of the site linked to the culture or historical heritage of its former land use. The importance of public involvement and engagement in the process is crucial for the satisfaction of the different community needs, and, although this should be intrinsic to any urban development process, it is of special importance in this type of sites.

Often addressed with an economic connotation - brownfield redevelopment - the overarching economic opportunity in brownfield interventions is to transform the sites to economically productive sites contributing to economic revitalization and regeneration. The following conclusions from an international symposium held in Toronto in 1998 optimistically illustrate this:

“Long dormant sites are being revitalized as owners, investors and regulators find new ways to regenerate old industrial areas. The result is a new "can-do" attitude that is improving the investment climate and establishing the partnerships needed to ensure the environmental and economic health of cities around the world”⁴⁴.

The Canadian National Brownfield Redevelopment Strategy⁴⁵ identifies four major economic benefits in brownfield redevelopment: the creation and retention of employment opportunities; an increased competitiveness for cities; an increased potential export for Canada cleanup technologies; and, an increased tax level for all three levels of government. The redevelopment of the sites into economically productive uses (i.e. industrial, commercial, and office) not only increases economic competitiveness at a city scale, but also at a smaller neighborhood scale.

Brownfield interventions also contribute to develop an efficient risk-management system. According to Canada's Waterfront Regeneration Trust, a growing number of communities in Europe, Canada and the United States have been successful in employing innovative ways to redevelop brownfield sites using risk based approaches. However, public perceptions about the risks posed by site conditions, implications concerning "who pays" and long term care, as well as difficulties in securing brownfield financing have presented deterrents to effective revitalization of many derelict sites. Brownfields with existing structures or infrastructures in sufficient good state to be reused also offer the possibility to reduce development costs related to demolition, transportation to wasteland, and construction.

According to the objectives of this thesis Key Strategic aims for redevelopment for derelict industrial site may be grouped as:

- Provide an attractive and secure place to live, work and visit;
- Safeguard and protect the valuable built heritage;
- Develop a sustainable residential and business community;

⁴⁴ Waterfront Regeneration Trust, Redeveloping Brownfields: A Different Conversation, Proceedings of an International Symposium [April 7-8, 1998], Canada 1998

⁴⁵ National Round Table on the Environment and the Economy, Cleaning up the past, building the future: a national Brownfield redevelopment strategy for Canada, National Brownfield Redevelopment Strategy Task Force, Ottawa, 2003

Built industrial heritage has become a valuable asset to be used to regenerate declining urban areas and promote a more desirable place image. Since historic buildings contribute immensely to the attractiveness, distinctiveness and identity of places. In addition to that while moving towards a more sustainable society, demolition of these culturally and historically significant buildings is now hard to be justified more than ever. Current urban policies strongly support the concept of preserving and reusing these buildings and their surroundings to create more sustainable, high quality, mixed use, high-density and historic districts.

The management of change is crucial to the long-term survival of heritage places. Change associated with historic buildings should involve adaptive reuse and reconstruction in order to combat both structural and functional obsolescence in accordance with changing social needs. This process urban recycling has two objectives. First, it protects a critical capital of cultural assets for future generations, and second, it preserves advanced place that gives historic areas their individuality. Skilful reconstruction rather than restoration, therefore, contributes to the added value of the building and forms part of its evolution (and survival). Compatible uses also raise the building's economic viability, promoting the efficiency of local economic activities and its social benefits.

Industrial heritage sites play important roles in the lives of communities. They provide tangible links to the past and may have provided the livelihood of substantial section of the community. Different communities and individuals value industrial heritage differently – for some industrial sites are a source of pride and bearers of important memories, for others they are an unsightly reminder of dilapidation and decline. The attitude taken depends on many things, including the structure itself, the social and political context, the recent history of the site and contemporary aesthetic mores. Heritage can make a strong contribution to social sustainability. Industrial heritage can also be important in creating new stories and identities as communities change and newcomers are integrated into an existing area.

There is potential for conflict between the roles of urban landscapes as a resource for social meanings and the needs of place-promoters to remake and re-image the city. The use of heritage in cultural led urban developments through city marketing campaigns and tourism industry gives way to the process of commodification of the past.

Adaptation formal industrial sites for a new use should respect the heritage significance of the existing site and its context. The level of change accepted for a place depends on the cultural significance of the place, and the type of significance. The Conservation Management Plan is very important in determining this and in all three studied cases the initiatives for this plan was a turning point for the future redevelopment. That initiative may start from the the sentiments, public and private organizations, non-governmental organization or directly from city institutions. Authorities have an important role in establishing economic and planning settings that will encourage good conservation and adaptive reuse. Temporary reuse can be an effective means to avoid deterioration and demolition through neglect while a new long-term use is being established. A program of rolling temporary uses can be also a valid long-term strategy for the reuse of a place.

The analysis of the three selected cases leads to certain conclusions. In the first case study of Distillery District in Toronto area after the redevelopment has been brought into the modern era through its commitment to sustainable development and mixed-use utilization, all while maintaining its unique historic built form, and looks forward to additional integration of modern growth through the building of new condominiums. Industrial sites and buildings of by-gone eras are still viable today in the spaces for culture and community alike.

In the second case in Manchester the process of conservation and reuse of industrial built heritage, another issue which proves contentious is the phenomenon of gentrification. Since, the historical and aesthetic qualities old industrial buildings such as mills and warehouses and their closeness to city center attractions draw people to live and work in these buildings. These new residents and their housing preferences, lifestyle and consumer choices pave the way for gentrification. Because of the nature of residential use being a highly private use comparing to other reuse schemes such as museums, art galleries and cafes, there is a greater potential that these schemes may cause gentrification, inequality, spatial segregation and social exclusion. Since these luxury and over-priced residential schemes are only affordable for middle class not for low income groups of the society. Similarly there is an issue regarding the accessibility of these schemes. These buildings are today homes / private properties with strictly-controlled entrances and only accessible to a small group of the society. Inevitably this prevents other wider groups from gaining access to these buildings.

The main commentary elicited by various investigators on the transformation of old industrial buildings where the primary function used to be manufacture goods rather than consume is also evident in Manchester especially for buildings reused for cultural and leisure purposes. What has been observed during this study is that the attempts to market the city as a site of leisure and consumption through commodification, marketing, and consumption of its heritage.

As it has been exposed, the successful recovery of industrial heritage needs to combine different types of management: reconnaissance actions, claims, planning, protection, reuse and transformation. Urban management policies should integrate urban transformation and recovery of assets in an economically viable and socially effective. As the conclusion it may be pointed out that the leading instruments should be developed more and constantly and to guide the actions and define criteria of interventions.

Within the third case of Terrassa Heritage, it has been observed that, in the most cases, redevelopment process led to public use. Private investments were negligible. As a result in the case of Terrassa, today in the former derelict industrial sites there is the museum, public galleries, University etc. Other industrial sites have disappeared, but the city planers preserved industrial elements, mostly chimney, which is represent the industrial monuments of the past.

It's difficult to put a value on public space and the impact it has on neighboring real estate values, but what is evident by example of these three projects is the amount of passion and commitment required to execute an urban recycling project. In the end, the community benefits and the economies fall into place — sometimes more so than imagined.

Bibliography:

- Aberdeen City Council ,The Definition of Vacant & Derelict Land, *Scottish Vacant and Derelict Land Survey*, 2013,
- Appleyard, D. *The Conservation of European Cities*. MIT Press, Cambridge, 1979
- Berger Alan, *Drosscapes in Waldheim, Charles*, The Leandscape Urbanism Reader, Princenton Arquitectural Press, New York, 2006
- Bowman and Pagano, *Vacant Land as Opportunity and Challenge*, chapter in *Recycling the City: The Use and Reuse of Urban Land*, Lincoln Institute of Land Polly, Cambridge, 2004
- Brooks, C.N., *A model for redeveloping complex, highly contaminated sites the Industri-plex Site in Woburn, Massachusetts*. WIT Transactions on Ecology and the Environment, 94: 229-238, 2006
- Brownfield Redevelopment: Stakeholders Report, EPA's Program Helps to Redevelop Sites*, Efforts GAO-05-94; December 2, 2004
- Bridges E.M., *Surveying derelict land*, Oxford Science Publications, Clarendon Press, Oxford, 1987
- Couch C. and Dennemann A., *Urban regeneration and sustainable development in Britain. Cities*, 17: 137–147, 2000
- Corner J., *Ecology and landscapes as agents of creativity*.In *Ecological design and Planning*, George Thompson and Frederic Steiner, eds, , Johan Wiley & Sons, Inc., 1996
- Coffin S. L. and Meyer P.B. Closing the Brownfield Information Gap: Practical methods for identify Brownfields, University of Louisville, 2002
- Christopher A. De Sousa, *Turning brownfields into green space in the City of Toronto*, Milwaukee, 2002
- De Sousa, C.A., *Brownfield redevelopment in Toronto: an examination of past trends and future prospects*. Land Use Policy, 2002.
- Edwards Brian, *Guia basica de sostenibilidad*, Barcelona, Ed. Gustavo Gili, 2004
- Ferber, Uwe; Grimski, Detlef, *Brownfields and Redevelopment of Urban Areas*, CLARINET, Contaminated Land Rehabilitation Network for Environmental Technologies, 2002
- FARINA, J. *La protección del patrimonio urbano. Instrumentos normativos*. Madrid, Ediciones Akal S.A, 2000
- Hough Michael. *Manufactured Sites. Rethinking the Post-Industrial Landscape*, Kirkwood, N. Ed. Spon Press, 2001

- Hough, Michael, *Cities and natural Process*, Routledge, London and New York, 1995
- Jone Belausteguigoitia, *Urban recycling/Reviving: The contribution to brownfield interventions to a more sustainable urban design*, University of Navarra, Spain, 2001
- Jacobs, Jane, *The Death and Life of Great American Cities*. New York City: Random House, 1961
- Karen Polenske, Li Xin, Chen Zhiyu, James Hamilton, *Recycling Industrial Land for Urban Redevelopment*, Department of Urban Studies and Planning, Massachusetts Institute of Technology, publish in Workshop on Global Innovations, World Bank, 2009
- Kris Wernstedt, Lauren Heberle, Anna Alberini, and Peter Meyer, *The Brownfields Phenomenon*, Press: Resources for the Future, November 2004, Discussion Paper 04–46
- Luis Loures, Thomas Panagopoulos, *Sustainable Development and Planning III, Sustainable reclamation of industrial areas in urban landscapes*, pg. 791, WIT Press, ISSN 1743-3541, 2007
- Lajos Boros, Zita Martying, Viktor Pal, *Industrial Tourism: Trends and Opportunities*, Szeged, 2013
- Murungi J., *On the Question of Land: A Philosophical Perspective. In: Transformations of Urban and Suburban Landscapes*. Backaus G. and Murungi. J. (ed), Lexington, New York, 2002.
- Michael Falser, *Industrial Heritage Analysis: World Heritage List and Tentative List*, UNESCO World Heritage Centre, Stagiaire, 2001
- Thomas Panagopoulos, Luis Loures, *From Derelict Industrial Areas towards Multifunctional Landscapes and Urban Renaissance*, University of Algarve, Portugal, ISSN: 1790-5079, 2007
- Langhorst, J., *Rising from Ruins: Post-industrial Sites between Abandonment and Engagement. Proc. of the Conf. Tourist Places/Theories and Strategies*. Edinburgh, Scotland, 2004
- National Round Table on the Environment and the Economy, *Cleaning up the past building the future: a national Brownfield redevelopment strategy for Canada*, National Brownfield Redevelopment Strategy Task Force, Ottawa, 2003
- Niall Kirkwood, *Manufactured Sites. Rethinking the Post-Industrial Landscape*, Spon press, 2001, Chapter 1
- Noha Nasser, *Planning for Urban Heritage Places: Reconciling Conservation, Tourism, and Sustainable Development*, Journal of Planning Literature, Vol. 17, No. 4, 2003
- Thomas M.R., A GIS based decision support system for brownfield redevelopment. *Landscape and Urban Planning*, 58: 7-23, 2002
- Thomas Telford, *Recycling Derelict Land*, Thomas Telford house, London, 1991
- Towards an Urban Renaissance, 1999. Lord Rogers of Riverside: towards an urban renaissance*. Final Report of the Urban Task Force. Chaired by Lord Rogers of Riverside, HMSO, 1999 and 2002

Terrassa City Council, *Memòria, Normes de protecció, Programa d'actuació i Pla de viabilitat econòmica Pla Especial de protecció del patrimoni històric-arquitectònic-ambiental de Terrassa*. Barcelona, Gerència Municipal d'Urbanisme, 1986

Nizhny Tagil, *Charter for the Industrial Heritage, The International Committee for the Conservation of the Industrial Heritage (TICCIH)*, 2003

Punter, J., *The Welsh Development Agency Design Guide – Its role in raising standards in Wales*, Welsh Development Agency, Cardiff, 2002

Russ, Thomas H. *Redeveloping Brownfields: Landscape Architects*, McGraw Hill, 2000

Sieverts, T. *Cities Without Cities: An Interpretation of the Zwischenstadt*. Spon Press, New York, 2003

Smart Growth Network (SGN), *An Integrated Approach for Brownfield redevelopment: a priority setting tools*, Washington, USEPA, 1996

Sandercock, Leonie, *Practicing Utopia: Sustaining Cities*. DISP 148, 2002

Sara M. Ibanez and Joaquin Sabete Bel, *Managing the Industrial Heritage in Urban Renovation: The Experience Of Terrassa 1959-2011*, ACE, ISSN: 1886-4805, 2013

Vanessa Kristy Mathews, *Place Differentiation: Redeveloping the Distillery District in Toronto*, University of Toronto, 2010

Links:

Center for Creative Land Recycling, Available at: <http://www.cclr.org/>

Urban Land Institute. *Growing Cooler: The Evidence of Urban Development and Climate Change*. Available at: <http://www.smartgrowthamerica.org/gcindex.html>

United States Environmental Protection Agency, *A Sustainable Brownfields Model Framework*, EPA, 1999, Available at: www.epa.gov/brownfields

The National Brownfield Association, Available at: www.brownfieldassociation.org

EUGRIS, Portal for Soil and water management in Europe, United Kingdom Brownfields, Available at: www.eugris.info/

CABERNET, (Concerted Action on Brownfields and Economic Regeneration Network), Available at: www.cabernet.org.uk/

English Heritage, Industrial Heritage at Risk. Available at: www.english-heritage.org.uk/caring/heritage-at-risk/industrial-heritage-at-risk/

The Distillery District, Available at: www.thedistillerydistrict.com/

The Distillery Heritage District, Available at: www.distilleryheritage.com/

Survey Form

Number: _____

Residente/Resident Edad/Age Género/Gender	Sí/Yes <input type="checkbox"/> No/No <input type="checkbox"/> 18-30 <input type="checkbox"/> 30-50 <input type="checkbox"/> 50-70 <input type="checkbox"/> 70-99 <input type="checkbox"/> Hombre/Male <input type="checkbox"/> Mujer/Female <input type="checkbox"/>
¿Cree Usted que está afectado el patrimonio industrial de la ciudad? Do you think that is affected the industrial heritage of the city?	Sí/Yes <input type="checkbox"/> No/No <input type="checkbox"/>
(Sí) En que nivel? / (Yes) At what level?	Alto <input type="checkbox"/> Medio <input type="checkbox"/> Bajo <input type="checkbox"/>
¿Está satisfecho con la forma en que el uso y la disponibilidad del patrimonio industrial de la ciudad? Are you satisfied with the way of the use and availability of the industrial heritage of the city?	Sí/Yes <input type="checkbox"/> No/No <input type="checkbox"/>
¿Cómo evalúa las perspectivas económicas en la ciudad? How do you evaluate the economic outlook in the city?	Estupendo/Great <input type="checkbox"/> Avanzado/Advanced <input type="checkbox"/> Satisfactoriamente/ Satisfactorily <input type="checkbox"/> Insatisfactoriamente/ Unsatisfactorily <input type="checkbox"/> Bastante malo/Very bad <input type="checkbox"/>
¿Cómo evalúa el patrimonio industrial de la ciudad? How do you evaluate the industrial heritage of the city?	Estupendo/Great <input type="checkbox"/> Avanzado/Advanced <input type="checkbox"/> Satisfactoriamente/ Satisfactorily <input type="checkbox"/> Insatisfactoriamente/ Unsatisfactorily <input type="checkbox"/> Bastante malo/Very bad <input type="checkbox"/>
¿Cree Usted que el patrimonio industrial está mejorando la economía de la ciudad? Do you think that the industrial heritage is improving the city's economy?	Sí/Yes <input type="checkbox"/> No/No <input type="checkbox"/>
¿Cree Usted que el patrimonio industrial se incrementa el potencial para el desarrollo turístico de la ciudad? Do you think that the historical heritage is increased the potential for tourism development in the city?	Sí/Yes <input type="checkbox"/> No/No <input type="checkbox"/>

Time: _____ Date: _____