

AN INTEGRATED FRAMEWORK
FOR
SUSTAINING INDUSTRIAL BEINGS IN THE URBAN CONTEXT

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SUSTAINING INDUSTRIAL BEINGS IN THE URBAN CONTEXT**

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ABSTRACT

AN INTEGRATED FRAMEWORK FOR SUSTAINING INDUSTRIAL BEINGS IN THE URBAN CONTEXT

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The need and challenge of sustaining *industrial beings* is a recent phenomenon. Hence the approaches in this regard are not yet profoundly defined to manage the protection and restoration of those beings. In this respect, this thesis searches for an *integrated approach* for sustaining industrial structures, sites, and landscapes which are typically significant for their heritage value in the *urban context*. To develop a thematically consolidated integrated framework, the study investigated ‘*conceptual*’, ‘*typological*’, ‘*analytical*’, and ‘*operational*’ basis of the subject matter. This is maintained by scrutinizing the practicalities of the (western) countries that have already formulated advanced policies.

The *conceptual basis* of the issue is revealed by examining the changing urban dynamics; the debate over ‘*continuity*’ versus ‘*change*’; main *value typologies* of the *heritage* resources and the process of *obsolescence* in the life-span of industrial beings. Taxonomy for the structures and spaces that constitute the

object matter of the thesis formed the basis of an *integral typology*. This is supported by the specification of the characteristics of industrial beings and the opportunities they offer in the urban context. Correspondingly, *strategic approaches* and modes of intervention relevant for the different types of industrial beings are examined. The study exposed the **analytical framework** by assessing industrial beings according to *diversity of functions, basic change of use, spatial scale of the projects, types of intervention and the design approaches*.

The *scope* of the issue in Turkey is revealed by identifying the present policy framework in accordance with the legislative and instrumental measures. This is complemented by an *inventory* for the significant industrial heritage sites. The findings demonstrated the particularity of the problematic in Turkey; the distinctive factors behind the emergence of obsolescence; the extremely divergent attitudes to and interests in obsolete industrial beings, as well as the complexity of the industrial sites.

As a final task, the application(s) for the industrial sites along *The Golden Horn* were investigated. The Golden Horn case has also confirmed that such an integrated approach is required to protect and enhance industrial beings. In this manner the basic components of an integrated program considering the sites in the urban context and as problem areas of urban design are specified.

Keywords: *industrial beings, integrated approach, urban context, industrial heritage, the golden horn.*

ÖZ

SANAYİ VARLIKLARININ KENTSEL BAĞLAM İÇİNDE SÜRDÜRÜLMESİNE YÖNELİK BÜTÜNLEŞİK BİR ÇERÇEVE

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Sanayi varlıklarının korunması ve sürdürülmesi güncel bir olgudur. Bu varlıkların korunmasını ve restorasyonunu sağlayabilmek için gerekli olan yaklaşımlar, siyasalar ve stratejiler tatmin edici düzeyde değildir. Bu tez, *kentsel bağlamda sanayi mirası* değeri olan varlıkların sürdürülmesi için *bütünleşik bir yaklaşım* arayışdır. Tematik olarak pekiştirilmiş bir bütünleşik çerçeve geliştirebilmek için konunun *'kavramsal', 'tipolojik', 'analitik' ve 'araçsal'* temelleri incelenmiştir. Bu araştırma kapsamlı yöntemler geliştirmiş olan (batılı) ülkelerin deneyimlerinin ve uygulamalarının analizi yoluyla gerçekleştirilmiştir.

Sorunun kavramsal temelini açığa çıkarabilmek için, kentsel dinamiklerin değişimi irdelenmiş; ayrıca *süreklilik-değişim* karşıtlığı üzerine yapılan tartışmalar; *miras kaynaklarının değer tipolojileri* ve sanayi varlıklarının *eskime* süreçleri incelenmiştir. Tezin nesnesini teşkil etmekte olan, yapıların ve mekanların sınıflandırılması, *tümlevsel tipolojinin* de temelini oluşturmaktadır.

Söz konusu sınıflandırma, sanayi varlıklarının niteliklerinin ve kentsel bağlamda sunduğu olanakların belirlenmesi yoluyla desteklenmektedir. Buna bağlı olarak, stratejik yaklaşımlar ve müdahale biçimleri ele alınmıştır.. Sanayi varlıkları *işlev çeşitliliği, ve kullanım değişiklikleri, projelerin mekansal ölçekleri, müdahale tipleri ve tasarım yaklaşımlarına* göre analiz edilerek analitik bir çerçeve geliştirilmiştir.

Türkiye’de bu konunun kapsamı, yasal ve araçsal önlemlere bağlı olarak sorunların ve siyasaların değerlendirilmesi ile ortaya konulmaktadır. Bu değerlendirmeye ek olarak sorunsalın boyutuna dikkat çekebilmek için bir ön envanter çalışması yapılmıştır. Bu çalışmanın ortaya koyduğu bulgular Türkiye’deki sorunsalın kendine özgü durumunu (eskimenin özgün sebepleri; farklı yaklaşım, talep ve müdahaleler, sanayi varlıklarının karmaşıklığı) bütünlük bir yaklaşıma olan ihtiyacı göstermektedir.

Çalışmanın sonunda, **Haliç** boyunca yer alan sanayi varlıkları ve uygulamalar incelenmiştir. Alan çalışması, sanayi varlıklarını korumak ve Haliç’e değer katmak için bütünlük bir yaklaşımın gerekliliğini bir kez daha ortaya koymaktadır. Bu doğrultuda sanayi alanlarının kentsel bağlamda incelendiği bütünlük bir programın bileşenleri belirlenmiştir.

Anahtar Kelimeler: *sanayi varlıkları, bütünlük yaklaşım, kentsel bağlam, sanayi mirası, haliç*

To My Family

PREFACE

In memories of Prof. Dr. Raci Bademli and Prof. Dr. Gönül Tankut

As an urban planner I was always interested in industrial structures and settings as a distinct building typology and urban pattern. This interest turned into a dissertation proposal in 2004 after I visited Kılıçoğlu Brick Factory in Eskişehir with my supervisor Assoc. Prof. Dr. Baykan Günay. At the time I was just arrived back to METU from Columbia University and was confused about my dissertation subject. I still remember very clearly the day when Mr. Günay encouraged me to write my thesis on this issue. Kılıçoğlu Brick Factory was one of the typical examples of the problems of the *industrial beings* in Turkey. For the purpose of the study we did not choose Kılıçoğlu Site as the case study. However, this project trip in 2004 always stood as a special *event* for me as it resulted in this thesis.

Starting from 2004, the guidance and critical comments of the ‘thesis progress committee’ (Balamir, Günay and Sargin) directed me to formulate a thematically consolidated and comprehensive approach. The formation and expertise of the committee members intuitively guided me to consider different *domains* of the study subject. Hence the thesis focused on an *integrated approach* which is based on *conceptual, analytical, typological, and instrumental* analysis of the object and subject matter of the thesis.

The first examining jury (Balamir, Eke, Günay, Keskinok and Sargın) held in February 2009 concentrated on *four* basic issues for the improvement of the thesis:

1. Consolidation of the thematic and conceptual basics with the international contexts and examples;
2. Development of a typological framework which classifies the structures and spaces that constitute the object matter of the thesis;
3. Formulation of an analytical support which can revise the characteristics of these categories;
4. Constitution of the basic elements of an integrated program which can be affective and applicable for Turkish Context.

Over this basic outline, with the guidance and critical comments of Prof. Dr. Murat Balamir, we decided to bring together a list of significant industrial structures/sites in Turkey. The purpose of this research was two-fold. The first intention was to expose the *scope, dimension and potential* of the problematic in Turkey. The second one was to draw attention to the absence of an *inventory* for the industrial beings in Turkey. In this respect I arranged a list for the significant examples of industrial structures/sites of the 19th Century Ottoman and 20th Century Early Republican Period in Turkey. I also want to thank Mr. Balamir for reminding me the relevance of an explanation of the *process of the study* as much as the end-product. His remark encouraged me to write this preface.

The critics of Prof Dr. Feral Eke helped me to locate the study subject in the *urban context*. In the beginning of the study I intended to concentrate on Silahtarağa Power-Plant Site (Santralistanbul). With the guidance of Prof. Eke and other members of the jury I changed the focus of the case study from Silahtarağa Power Plant to the whole of the Golden Horn region. The basic purpose of this decision was to justify the necessity of an integrated framework. Thus I found the chance to relate the *conceptual basics* of the study with the *contextual characteristics* of the Golden Horn.

The critics of Assoc. Prof. Dr. Çağatay Keskinok led me to build a solid background for the study subject. With his guidance the problems of industrial beings originated from the changing *urban dynamics* are discussed with special emphasis to city centers and *urban contextual* issues. Mr. Keskinok stated that the problems and needs of the industrial cities are one of the main issues of the urban planning discipline. While coping with these topics, the potentials of the industrial production for the urban life and culture should not be ignored. These remarks of Mr. Keskinok were one of the basic motives in the development of the thesis.

The selection of the terminology was one of the basic challenges throughout the writing process. With the guidance of my supervisor Assoc. Prof. Dr. Baykan Günay, we decided to use the term “*industrial beings*” especially in the title of the study. This term expresses an *ontological perspective* to conservation which is considered to be overlapping with the major focus of the thesis: why and how to sustain the *existence* of post-industrial obsolete structures and sites.

The critics of Assoc. Prof. Dr. Güven Arif Sargin helped me to better appreciate the *object matter* of the thesis. Also his critics gave me courage to be more *critical* and revise the study in this manner.

These were the major stages of the formation of this study. As a conclusive remark, I hope that this study which formulates an integrated approach can provide a basis for future studies. There is a need to accomplish an in-depth study of the components of the integrated framework both from *theoretical* and *practical* perspectives. This work can be done on different case studies representing different categories of industrial beings. Moreover, there are also questions about the broader meaning of the industrial beings which can be analyzed from the viewpoints of different disciplines: continuity and change; the international context of industrialization; production and consumption; understanding the workplace; industrial settlement patterns; class status and identity; the use of urban and architectural analysis in understanding the significance of industrial beings can be given as major fields of future studies.

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CHAPTER 1

INTRODUCTION

1.1 Scope of the Thesis:

This thesis focuses on the issue of **sustaining industrial beings** seeking to raise awareness about their potentials and values in the urban context. Protection and restoration of industrial beings is a process that needs to coordinate and regulate the *continuity and change* in the urban fabric. In this respect, planning for the effective conservation and revitalization of *obsolete* industrial sites requires an integrated approach adopting from combined models of interdisciplinary action.

As a consequence of *technological change* and its multi-dimensional urban impacts, industrial structures/sites are increasingly and progressively coming under the threat of obsolescence, new development, and destruction. In many cases, the changing *social and economic conditions*, and *policy frameworks* aggravate this situation with an even more formidable phenomenon of damage.

Problems arising due to obsolescence of industrial beings and the issues of revitalization of post-industrial obsolete structures/sites formed a dominant background to urban studies, since it has a major influence on the restructuring of the built environment. The obsolescence and future of industrial structures/sites is a priority in the agendas of cities. On the other hand, starting from 1950s, as another domain of urban studies, there has been a growing

consciousness towards appreciating the **heritage** value of industrial structures/sites. *Industrial beings* being the *symbol* of the processes of *production* in both *space and time* are vital for the permanence, diversity, character and collective memory of the city. In the middle of the twentieth century, when important evidences of the industrial revolution vanished, the concept of **industrial heritage** and consequently the interest in its conservation appeared. Thus, this consciousness of recognizing their multi-layer values brings the emergence of “**industrial archaeology**” as a new field.

In between these two domains, this thesis examines how new **meanings, values, approaches, strategies, and tools** are negotiated for **post-industrial obsolete structures/sites (PIOSS)** in the urban context. In this manner the concerns for the future of PIOSS concentrated on three key questions: “**what to preserve**”, “**why to preserve**” and “**how to preserve**”. The scope of the study is therefore beyond the preservation of individual buildings. In addition to the **multi-layer values** of the industrial beings, the process of **obsolescence** and **disintegration** of PIOSS from the urban fabric is a crucial **planning, design and management problem**. In this respect this thesis searches for an **integrated approach** to build a basis for the development of new frameworks and strategies.

1.2 Hypothesis of the Study:

The changing urban dynamics and their impacts on industrial sites cannot be managed easily. Many cities struggle with numerous obsolete post-industrial sites in their midst. To sustain the existence of industrial beings, multi-layer values should be integrated with the opportunities it offers in the urban context: In this respect the hypothesis of the thesis is:

“An integrated approach is required in order to cope with the complex nature of industrial beings in the urban context.”

1.3. Basic Assumptions of the Thesis:

It is important to clarify several crucial points in the beginning of the study. First of all, in the context of changing urban dynamics, reusing or converting industrial buildings/structures/complexes/facilities into a different use is not a **must** or an **inevitable process**. The process of deindustrialization and its impacts is rather contingent and depends on the power dynamics; changing demands for urban space; the growth of financial and business services; a shift from industrial production to service sector; technological development and the associated changes in occupational structure. Secondly, function is an integral part of the historical and cultural value of industrial beings. Moreover, in many cases the process of obsolescence, which can end up with the vanishing of the industrial heritage, starts with de-functioning of the facilities. Thus, apart from very dangerous situations of environmental and public health concerns, protecting and enhancing industrial beings **with its function** should be the priority of the public policies. This could be the most sustainable way to protect industrial heritage sites.

In this study the term “*industrial beings*” is used **deliberately** in order to

emphasize the necessity of an *ontological perspective to conservation*¹. This perspective is considered to be overlapping with the major focus of the thesis: **why and how to sustain the existence of post-industrial obsolete structures/sites**

Under these basic assumptions the **object matter** of this study is **Post-Industrial Obsolete Structures/Sites** (*abbreviated as PIOSS throughout the study*) with **heritage significance** in the **urban context**. The PIOSS refers to the structures, sites and landscapes built and developed for the application of industry, warehousing and transportation after industrial revolution which are currently under the threat of obsolescence. These buildings, structures and sites are forming a distinctive urban cultural landscape in the urban space. Although being in a state of various levels of *functional, locational, physical, environmental, visual and economic obsolescence*, PIOSS have substantial potentials and **enhancing their value** and **sustaining their existence** can bring multi-dimensional benefits for the cities.

1.4 Objectives of the Thesis:

This study seeks to raise awareness about the potentials and values of industrial beings which are foremost significant for their *heritage* value in the urban context. In this respect, the main objective of the thesis is to formulate the components and elements of an integrated approach by which new frameworks and strategies can be developed to protect, reclaim, and enhance industrial heritage.

Research objectives have been identified as follows:

- To specify the problems/potentials and constraints/opportunities of PIOSS in the urban context

¹ See (Günay, 2009) for an in-depth discussion of the conservation of urban space as an ontological problem.

- To integrate the multi layer values of industrial heritage with the opportunities it offers in the urban context
- To demonstrate the strategic approaches which can be used to reintegrate PIOSS into the urban built environment
- To identify and assess the impact(s) of revitalization of industrial sites on the built environment
- To identify the scope, significance and problems of the issue in Turkey
- **To formulate an integrated approach.**

1.5. Research Questions:

Conceptual **basis** for the development of an integrated framework can be specified by the following research questions:

- What are the dynamics behind the emergence obsolescence?
- What are the impacts and basic types of obsolescence?
- What are the multi-layer values of industrial heritage?
- What are the opportunities and constraints of PIOSS in the urban context?
- What are the different strategic approaches in different contexts?
- What are the modes, types, levels and tools of intervention?
- What are the key factors of successful examples?
- What are the thematic concerns of intervention?
- What are the scope, significance and problems of the PIOSS in Turkey and Golden Horn?
- Why it is compulsory to protect and enhance industrial heritage?
- Why a typological and analytical framework is required?
- Why an integrated approach is necessary?
- How can the case studies of transformation processes be analyzed?

- How can the multi-layer values of industrial heritage be integrated with the opportunities it offers in the urban context?
- How the issue of industrial heritage should be approached in the urban context?
- How can industrial beings be sustained?
- How can their multi-layer values and benefits be enhanced in the urban context?

1.6. Configuration of the Thesis:

This study has six chapters. The second chapter aims to build a basis for the state of PIOSS in the *changing urban dynamics*. The chapter briefly discusses the post-industrial urban transformation process and the impacts of deindustrialization of urban centers. It continues with the discussion of *multi-layer values* of industrial heritage and the *opportunities* it offers in the *urban context*. The *constraints* of sustaining PIOSS are specified by analyzing the process of *obsolescence*.

The third chapter builds a *typological framework* which can provide a basis for the analysis of PIOSS in the urban context. The main objective of this section is to formulate an *integral typology* which is considered to be necessary both from theoretical and practical points of view. As the second step of the typological framework the basic *strategic approaches* are identified and discussed. The chapter ends with a *taxonomy for modes of intervention*.

The fourth chapter analyses the transformation processes of the PIOSS with an *analytical approach*. This chapter combines international examples with a literature review. In this respect case studies/examples are categorized with reference to six major criteria: Diversity of Functions, Basic Change of Use, Spatial Scale of the Projects, Type of the Intervention, Character of the Area and

Major Emphasis of the Projects and Architectural Design Approaches. In the end of this chapter essence, thematic concerns and key factors of intervention are scrutinized.

Chapter five will be the case study of the study. This chapter starts with the discussion of the significance and dimension of the issue in Turkey. The *scope* of the issue in Turkey is revealed by identifying the present policy framework in accordance with the legislative and instrumental measures. This is complemented by an *inventory* for the significant industrial heritage sites in Turkey. The particularity of the problems and threats are identified to assess the necessity of an integrated approach. On this basis, the transformation of the PIOSS in the setting of the Golden Horn will be expressed. This chapter intends to bring the *conceptual basis* of the thesis with the *contextual characteristics* of the Golden Horn. In this manner the basic components of an integrated program considering the sites in the urban context and as problem areas of urban design are specified.

The *conclusion chapter* discusses the basic components of an integrated program considering the sites in the urban context and as problem areas of urban design. This framework can be used as an operational guide for future studies. Moreover critical remarks for the state of industrial beings in Turkey and the Golden Horn are revised. The chapter ends with the future research and policy frameworks.

CHAPTER 2

THE STATE OF INDUSTRIAL BEINGS IN THE CHANGING URBAN DYNAMICS

2.1. The Post-Industrial Urban Transformation Process

In the 19th century and early decades of the 20th century a distinct pattern of urban development evolved, associated with large-scale *urban industrialization*. The *factories* are the most remarkable legacy of this era, vividly captured in Lowry's paintings. These factories were accompanied by a developed *transport and distribution infrastructure of railways, ports, canals, warehouses, and the like*. This industrial landscape and its associated *employment and occupational class structure* formed the dominant background to urban studies for many decades (Beauregard, 1991; Florida, 2002; Hall, 2000; Hamnett, 2003b; Knox, 1991; 1993; Ley, 1996; 1980; Savitch, 1988; Shaw, 2001; Hamnett, Whitelegg, 2007).



Figure 2.1. Industrial Landscape, 1955 by L.S. Lowry 1887-1976
(Source:Tate Collection:
<http://www.tate.org.uk>)



Figure 2.2. City of Essen, 1923, Ruhr Region, Germany © Bettmann/CORBIS
(Source: www.corbis.com)

The effects of the changes in *transport and communications technology*, the rise of the *business and financial services, globalization of industry*; the emergence of *knowledge-based economy and knowledge intensive business service*; the *automation of production processes* and the *relocation of industry* to areas characterized by low production costs 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 (Handley, 1996; Loures, Panagopoulos, 2007; Loures, 2008; Ling, Handley, Rodwell, 2007).

Thus, it won't be wrong to state that 20th century has brought a **paradigm break** in the industrial sector and the way in which it manifests itself **physically and geographically** in the world. (Loures, Panagopoulos, 2007). Castells describes this transition as a shift as momentous as the shift from an agrarian to an industrial economy in the 18th and 19th centuries (Castells, 2000; Tötzer, Gigler, 2005).

2.2. Deindustrialization of Urban Centers

As a consequence of the *process of deindustrialization*, a major transformation in the *economic, social, and urban structure* of many industrial cities occurred. This process termed ‘deindustrialization’ also had significant *environmental and ecological* repercussions (Handley, 1996; Loures, Panagopoulos, 2007; Ling, Handley, Rodwell, 2007; Loures, 2008).

Deindustrialization has had a number of key manifestations in the cities. First and foremost deindustrialization was accompanied by large-scale closure and abandonment of old factories and associated decline of the 19th-century transport infrastructure. Interrelatedly, changes in the transport and distribution infrastructure accompanied the changes in industrial structure. Much of the transport infrastructure of docks, canals, canal basins, and warehouses has also become obsolete (Bassett et al, 2002; Gordon, 1997; Hall et al, 1995; Hamnett, Whitelegg, 2007 Hutton, 2004; Imrie and Thomas, 1995; Lambert and Boddy, 2002; Levine, 1989; McCarthy, 1996; Swyngedouw, 2002).



Figure 2.3. Struggle Against Deindustrialization in Lorraine:
During the strike against the steel industry restructuring plan.
(© Armel Brucelle/Sygma/Corbis)
(Source: www.corbisimages.com)

The legacy of post-industrial obsolete (unused, abandoned derelict etc.) landscapes have reduced the development potential and urban vitality in affected

areas. Urban core areas became economically disadvantaged, socially distressed and environmentally degraded through industrial contamination and process decline (Handley, 1996; Ling, Handley, Rodwell, 2007; Loures, Panagopoulos, 2007; Loures, 2008).

Such transformation is not inevitable in all industrial cities. It is rather contingent and depends on the power dynamics; changing demands for urban space; the growth of financial and business services; a shift from industrial production to service sector; and the associated changes in occupational structure. If these changes managed successfully dereliction and obsolescence of industrial facilities may not occur or persist for decades (Beauregard, 1991; Florida, 2002; Hall, 2000; Hamnett, 2003b; Hamnett, Whitelegg, 2007; Knox, 1991; 1993; Ley, 1996; 1980; Savitch, 1988; Shaw, 2001).

The changing urban dynamics and their impacts on PIOSS cannot be managed easily. Many cities struggle with numerous derelict, partially or fully abandoned, and often contaminated old industrial sites in their midst (Tötzer, Gigler, 2005)

As a consequence of deindustrialization, PIOSS are increasingly and progressively coming under the threat of new development and destruction. It is not only by the causes of obsolescence, but also by changing social and economic conditions, which aggravate the situation with an even more formidable phenomena of damage or destruction (Doratli, 2005). In this context, the concerns for the future of PIOSS concentrated on three key questions: **what to preserve, why to preserve and how to preserve.**

2.3. What to Preserve: Industrial Heritage and Industrial Archaeology

While the definitions of *why to protect* and *how to protect* are more complex and can sometimes be dissimilar or conflicting, it is commonly recognized that the concept of industrial heritage is applicable to every type of industrial activity and to every material or immaterial element created by the industrial society (Andrieux, 1992; Berliet, 1985; Green, 1985 and White, 1990).

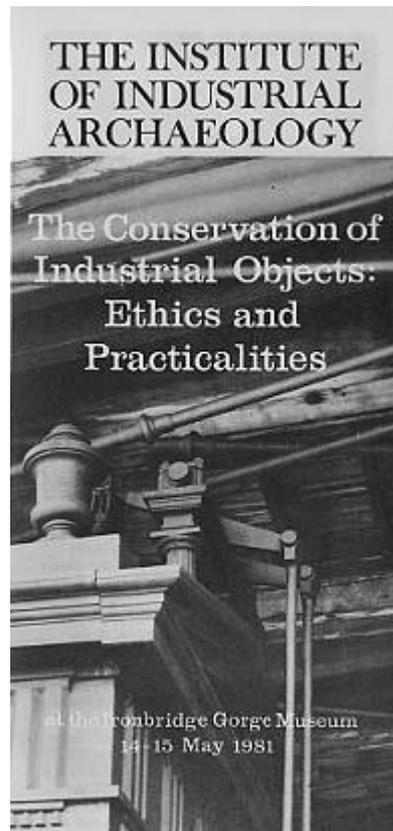


Figure 2.4. Exhibition poster for Institute of Industrial Archaeology, 1981
Source: Smithsonian
(Source: <http://americanhistory.si.edu/archives/acdisplay/-7.jpg>)

According to Lefebvre (1991) “The city precedes the industrialization”, and before the city, “...there was the settlement, the shrine, the village; before the

village, the camping site, the shelter, the cave...” (Mumford, 1998) and all these structures are now an integral part of the urban heritage. From rural to urban, and now to industrial, the concept of heritage is currently larger than ever. This enlargement is not only **thematic**; it is also **spatial**, once its scope changed from the protection of a single monument to the protection of a whole landscape, or even a whole city or region (Neyret, 2004).

In the middle of the twentieth century, when “important evidences from the industrial architecture were demolished” (Kuhl, 2004), the concept of **industrial heritage**, **industrial archaeology** and consequently the interest in its conservation appeared (Choay, 1992)



Figure 2.5. The world’s first iron bridge.:

“It is located in Ironbridge in the West Midlands of Britain.

The iron was manufactured in the surrounding area and the bridge was erected in 1779.”

Photos: Anna Storm, 2006.

(Source: Storm, 2008)

In 1955, Michael Rix in the University of Birmingham in Britain published a paper entitled “**industrial archaeology**”, calling for immediate conservation of machineries and relics in the British industrial revolution. The paper put an emphasis on the analysis of the threat of vanishing of industrial heritage as well as the value of preservation from the point of “archaeology” and evoked a heated discussion among academic field. In 1973, *British Institute of Industrial Archaeology* was established; in the same year, the first international congress of

industrial relics was held in the Iron-bridge Museum in England, located in the birthplace of world first iron bridge. Then the *International Committee for the Conservation of the Industrial Heritage (TICCIH)* was founded and a special award for industrial archaeology was set in 1997 (Wang, Jiang, 2007)

Since this period, significant efforts have been developed in order to define the meaning and the scope of the industrial heritage/archaeology, establishing chronologic parameters and performing several studies, with the objective to define **what to preserve** and **why to preserve** it.



Figure 2.6. The Society for Industrial Archeology :
It was formed in 1971 to promote the study, appreciation, and preservation of the physical survivals of industrial and technological past
(Source: <http://www.siahq.org/>)

What is known today as heritage¹ can no longer be merely equated with monuments built before the eighteenth century. ‘Recent’ heritage may no longer be considered, a priori, of lower value than old ones. It is essential to emphasize

¹ **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 (The Nizhny Tagil Charter For The Industrial Heritage, July 2003, TICCIH)

the idea that the history of the city and consequently our history do not stop in the eighteenth century (Custódio, 1991). History accompanies the evolution of the society since the past to the present, and the industrial society, is obviously an important part of this history (Loures, 2008)

2.4. Why to Preserve: Multi-Layer Values of PIOSS

Post-Industrial Obsolete Buildings and Sites (PIOSS) can be regarded as examples of strategic economic infrastructure, technological wonders, architectural icons, or as objects of historic preservation (Schneekloth, 2006).

The concept of *value* has been increasingly located at the heart of theoretical discourses on heritage and has become a central argument in its conservation process.

Table 2.1. Main Value Typologies in Heritage Publications

Main Value Typologies in Heritage Publications			
Riegl (1996 [1903])	Lipe (1984)	ICOMOS (Australia) (Burra Charter) (1979 revised in 1981, 1988 and 1999)	Darvill (1995)
Age Historical Deliberate Commemorative Use Newness	Economic Aesthetic Associative/ Symbolic Informational	Aesthetic Historic Scientific Social Spiritual	Use Value Archaeological research Scientific Research Creative Arts Education Recreation and tourism Symbolic representation Legitimization of action Social solidarity and integration Monetary and economic gain Option Value Stability Mystery and Enigma Existence Value Cultural identity Resistance to change
Carver (1996)	English Heritage (1997)	Deeben et al. (1999)	Mason (2002)
Market values Capital/estate value Production value [including agricultural,mineral extraction, etc.] Commercial value Residential value Community values Amenity value [provides something to be shared by the community] Political value [a vote winner] Minority/disadvantaged/ descendant value [wins the support of the disaffected] Local style value (rather than aesthetic, which – Bequest is unknowable) [wins the support of the elders] Human values Environmental value Archaeological value	Cultural Educational Academic Economic Resource Recreational Aesthetic	Perception Aesthetic value Historical value Physical quality Integrity Preservation Intrinsic quality Rarity Research potential Group value Representativity	Socio-cultural values Historical value Cultural/symbolic value Social value Spiritual/religious value Aesthetic value Economic values Use (market) value Non-use (non-market) values: Existence Option Bequest

(Source: Labadi, 2007)

The multi-layer values of the PIOSS, offers many opportunities in the **urban context**. For this reason the **justification** to protect and reclaim PIOSS should be based on diverse criteria. This section will try to **integrate** values of industrial heritage with the *opportunities/benefits/advantages/potentials* it offers in the urban context and will try to rationalize the answer to the question of “**why to protect**” Although being all **interrelated**, the **multi-layer values and opportunities of revitalization of PIOSS** can be discussed under **two clusters**:

Table 2.2. Multi-Layer Values of PIOSS and Opportunities in the Urban Context:

CLUSTER 1: Urban Contextual Opportunities
Locational Advantages
Catalytic Benefits
Public Realm
Identity and Collective Memory
Ownership
Sustainability
Spatial
Structural
Visual
CLUSTER 2: Multi-Layer Values
Socio-Cultural Value
Historical Value
Technological and Scientific Value
Educational and Academic Values
Architectural and Aesthetic Value
Landscape Value
Economic Value
Resource Value

Source: This table is gathered from the following references: Australian Minister for Transport and Urban Planning, 1999; Ball, 1999; Buchanan, 2005; Friedman, 2003; Loures, Panagopoulos, 2007; Karachalis, Kyriazopoulos, Lourantos, Koll-Schretzenmayr, 1999; Tomerius, 2000; Tötzer, Gigler).

2.4.1. Cluster 1: Urban Contextual Opportunities

From an urban perspective, the preservation/conservation/revitalization of PIOSS contributes to the **diversity, character, vitality and livability** of the built environment, distinguishing it from yet another anonymous city. The conservation of industrial heritage also contributes to a city's competitiveness. *Differentiation* is a key component of competition (economic and otherwise) and cultural and historical features of PIOSS share the quality of being almost impossible to reproduce or recreate once lost (Chu, Uebegang, 2002). In this perspective the urban benefits can be summarized as follows (Loures, Panagopoulos, 2007; Scadden, 2001; Snyder, 2005; Wang, Jiang, 2007)

1. Reducing urban sprawl and infrastructure costs
2. Enhancing environmental quality and performance
3. Redirecting the expansion of the city
4. Providing better levels of urban amenity, vitality and livability
5. Improving image and quality of the built-up area
6. Re-establishing the relationship between city and obsolete segregated parts of the city
7. Enhancing the urban voids.
8. Strengthening the physical and social fabric of the built-up area
9. Providing public spaces

Locational Advantages: A great percentage of the PIOSS are located in the city centers or in strategic locations of a city which have high level of accessibility and proximity to the urban core. Those sites are often supported by existing infrastructure and adjacent to built-up area, close to the natural amenities and have access to major transportation hubs (Loures, Panagopoulos, 2007).



Figure 2.7. Examples for Industrial Sites in strategic locations: Malmö, Sweden
(Source: Zinkernagel)



Figure 2.8. Examples for Industrial Sites in strategic locations: Gastown, Vancouver, Canada
(Source: Spaxman, et al., 2001)

Catalytic Benefits: Industrial Buildings can be considered as an asset that has an important role to play as a catalyst for revitalization/regeneration. The physical/social/functional revitalization associated with reclaiming PIOSS *can* have positive impacts often encouraging upgrades in the surrounding built-up area, neighborhood or even the whole city (Snyder, 2005).

Public Realm: PIOSS seem particularly suited to create *public spaces* that allows for integration of the obsolete sites with the urban fabric. They can provide a variety of public uses and activities. Thus, conservation of PIOSS can constitute and strengthen the public realm when they are reconsidered in this manner. By this way they can be reintegrated with the city and reinforce a sense of place.



Figure 2.9. Industry as a public stage: At the Bregenzer Festspiele in Austria, a replica of an oil refinery served as an opera stage design. Photos: Karl Forster, 2005. Courtesy of the Bregenzer Festspiele.
(Source: Storm, 2008)

Identity and Collective Memory: Places of industrial “heritage significance” enrich people’s lives by providing a deep sense of connection to the past and to lived experiences. Heritage acts as an historical record and tangible expression of identity. It also reflects the diversity of the community sustains urban values and allows future generations to connect to the collective history (Chu, Uebegang, 2002). Industrial heritage conservation is therefore reinforces identity and community values (Pickard, 2002). Granada Convention (article 6) It is a key component in maintaining “*social capital*”, which is a product of shared values and acts as an important basis for the common interests and trust that support social and economic life (Chu, Uebegang, 2002).

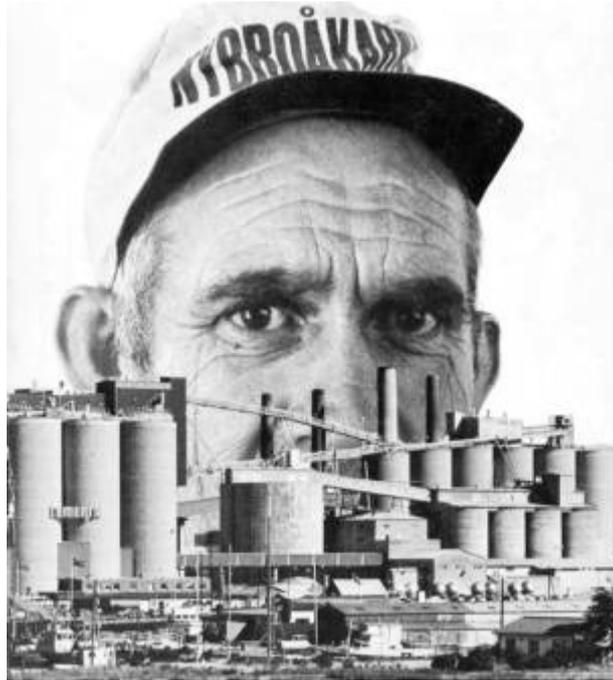


Figure 2.10. Industrial heritage, memory and identity
(The front cover of the book “Dig where you stand: How to explore a job”, written by Sven Lindqvist and published in 1978 Bo Berling. Courtesy of the Bonnier group)
(Source: Storm, 2008)

“*Placeless-ness*” is a common phenomenon felt by many people who live in modern metropolises. The apathy that often accompanies it imposes significant costs on a city. Conserving heritage can strengthen a sense of place and civic pride for the people. This is also of vital importance on an individual level, as it instills a sense of purpose, connection and meaning in one’s daily life (Chu, Uebegang, 2002).

Ownership: Usually industrial sites are in public ownership. When the ownership is private usually it is not divided between many tenants. This situation can be used as an opportunity to ease the intervention process to protect and enhance industrial heritage.

Sustainability: Revitalization of PIOSS has significant support as a positive strategy to make the built environment more sustainable (<http://www.emeraldinsight.com>). The opportunity to reuse obsolete facilities especially in the urban core supports sustainability and smart growth initiatives designed to focus revitalization in inner cities in an effort to decrease urban sprawl (Scadden, 2001). Reclaiming PIOSS can substantially reduce construction waste and environmental pollution, as well as release the pressure of communication and consumption of energy (water and power) during construction, satisfying the demands of sustainable development (Wang, Jiang, 2007).

Thus revitalization of PIOSS can promote “sustainable urban development” by.

- Reducing resource consumption, energy use and emissions;
- Extending the useful life of buildings;
- Reclaiming embodied energy over a greater time frame;
- Creating valuable community resources from unproductive property;
- Reducing land consumption and urban sprawl;
- Increasing the demand for retained existing buildings;



Figure 2.11. Urban sprawl /suburban development: Las Vegas, Nevada, USA
© Ron Chapple/Corbis
(Source: www.corbisphoto.com)



Figure 2.12. Inner city revitalization: Docklands, London, England, UK
© Construction Photography/Corbis London
(Source: www.corbisphoto.com)

Spatial Opportunities: Industrial buildings are viable candidates for adaptive reuse due to the ability to accommodate a variety of new uses or programs. They can provide high quality, multi-functional and flexible spaces. The size, geometry, spatial configuration of the PIOSS represents significant opportunities for developing new functions on a grand scale (Scadden, 2001; Shipley, Utz, Parsons, 2006).



Figure 2.13. An example of a Great Hall
© Bettmann/CORBIS
(Source: www.corbisphoto.com)

Structural Advantages: In many cases, industrial structures have a unique quality in the construction of the structures (Shipley, Utz, Parsons, 2006). Generally, the material longevity of industrial buildings is longer than the longevity of functions. Because of the specific function and space requirement, industrial buildings are often constructed with advanced techniques, and most of them are solid, and the internal space is not quite consistent with function. Moreover because of massive volume and complicated structure of many industrial buildings, demolishing can be costlier than adaptive reuse (Wang, Jiang, 2007).



Figure 2.14. Turbinenhalle, Berlin, Germany

Architect: Peter Behrens (1909)

(Source: www.images.google.com)

Visual Advantages: Industrial buildings create a **focal point** that people can relate to and are familiar with – giving a sense of place (RICS, BPF, English Heritage, Drivers Jonas). Some large, towering industrial buildings, especially those that stand on waterfronts or near public places are the icons, many of which are the **symbolic landmarks** of their cities, and are an important part of landscapes for people to know more about a city (Wang, Jiang, 2007).



Figure 2.15. Bankside Power Station (Tate Modern) in 1989

(Source: Moore R and Ryan R., 2000)

2.4.2. Cluster 2: Multi-Layer Values

Socio-Cultural Value: The historic industrial environment provides a context for everyday life. Its appreciation and conservation fosters distinctiveness at local, regional, and national levels. It reflects the roots of the society, records its evolution and fosters the social and cultural emancipation of the society (Anzuini, et al., Loulanski, 2006).

Industrial heritage may, through an increased awareness of the citizens' roots and a strengthened community feeling, be an incentive for social integration (Anzuini, et al.). The industrial heritage is of social value as part of the record of the lives of ordinary people, and as such it provides an important sense of identity (Casanelles, Logunov, 2003).

Historical Value: The industrial heritage is the evidence of activities which had and continue to have profound historical consequences. The motives for protecting the industrial heritage are based on the universal value of this evidence, rather than on the singularity of unique sites (Casanelles, Logunov, 2003).

The industrial heritage connects people with the past (Ling, Handley, Rodwell, 2007) PIOSS describe an important part of the history of a place, thus, constituting a testimony of cultural, social and economic conception and evolution which documents and interprets considerable values for urban heritage. Furthermore, the analysis and recovery of PIOSS constitute an opportunity that tends to be lost in time, considering the growing urban pressure that, had several times led to the disappearance of various industrial infrastructures, some with high heritage value and significant relevance (Loures, 2008)

Technological and Scientific Value: PIOBS have technological and scientific value in the history of manufacturing, engineering and construction (Casanelles, Logunov, 2003).



Figure 2.16. Emscher Landscape Park, Former Thyssen Steel Factory in Duisberg-Meiderich, Ruhr, Nordrhein-Westfalen, Germany © Guntmar Fritz/Corbis
(Source: www.corbisimages.com)

Educational and Academic Values: The historic environment is a major source of information about the evolution of the society, and the characteristics of past environments. It provides a means for new generations to understand the past and their own culture. We can also use industrial archaeology to learn about the long-term impact (and sustainability or otherwise) of past human activity and

development, and use this knowledge when planning our future (Loulanski, 2006).

The rapid decline of so many traditional manufacturing industries in the second half of the twentieth century has created a new sort of society which is largely ignorant of the processes that generated it, yet will welcome the opportunity of cultural experiences that can edify and entertain its citizens. This educational argument can be carried a stage further in the claim that such knowledge is essential for our self-understanding as an evolving society (Buchanan, 2005).

Architectural and Aesthetic Value: The standardization, function and efficiency priority in industrial buildings shows an essential philosophy of modern architecture: abstraction and reverting nature under the economic background of industrial society. The “form follows function” and the geometric aesthetics, logicity and construction that conform to industrial production have become the governing rules that influence the architectural expression, and are still of important meaning and realistic value (Wang, Jiang, 2007).

The industrial structures, buildings and the machinery in many cases are of great historical and aesthetic value (Karachalis, Kyriazopoulos, Lourantos, Shipley, Utz, Parsons, 2006). Industrial buildings make a major contribution to the aesthetic quality of townscapes and landscapes, and give a historic depth and interest (Loulanski, 2006).

Various kinds of buildings in different periods constitute varied human landscapes with specified connotation. Comparing with other types of historical buildings, industrial buildings are a witness of the course of civilization. These relics are the best exhibits of industrial age in “urban museum”, such as the Fagus Shoe-last Factory designed by **Walter Gropius and Adolf Meyer** in 1911 which is the first one built in reinforced concrete structure with glass curtain wall in Europe and of great importance in architectural history (Wang, Jiang, 2007).



Figure 2.17. Fagus Shoe-last Factory: It is the first building in Europe that entirely adopted the reinforced concrete structure and glass curtain-wall. Thus it possesses great significance in architectural and construction history (Wang, Jiang, 2007)
(Source: http://en.wikipedia.org/wiki/Fagus_Factory)

Industrial structures/buildings/complexes in many cases are impressive architecturally, both in their size and form. They have rich architectural detailing and character-defining features (Cantell, 2005). Revitalization of PIOSS opens a new sphere of activities for architects and designers (Andelkovic, 1998). The adaptation of industrial buildings presents a genuine challenge to architects and designers to find innovative solutions. As development pressures increase in the cities, more PIOSS are being reused, producing some successful examples of creative designs that retain heritage significance.

Landscape Value: Some landscapes have been enhanced aesthetically and culturally by their industrial monuments, and that the preservation of the remains of past industrial activity may contribute an element of **heterogeneity** to a landscape which, if left to normal decay and redevelopment, is likely to relapse into bland anonymity. Industrial heritage makes a landscape richer than it would be without its industrial character (Buchanan, 2005).



Figure 2.18. Emscher Landscape Park, Former Thyssen Steel Factory in Duisberg-Meiderich, Ruhr, Nordrhein-Westfalen, Germany
© Claudius/Corbis (left)
© Atlantide Phototravel/Corbis (right)
(Source: www.corbisimages.com)

PIOSS could potentially support the understanding of landscape not just as a product, but as an *agency for ecological, cultural and social change* (Langhorst, 2003). Moreover, the post-industrial historic sites play a significant role in providing recreation. Increasingly, the past and its remains in the present are a vital part of people's everyday life and experiences (Loulanski, 2006).

Economic Value: There is a strong economic case for sustaining PIOSS. The benefits relate not only to the individual building/site, but also to the wider area and community. Critical to the success of intervention is continuing the original use or finding a viable economic use that can support initial refurbishment, provide the owner or developer with a reasonable return on their investment and which generates sufficient income to ensure the long-term maintenance of the building fabric and public spaces. The inclusion of heritage assets in regeneration schemes provides a focus and catalyst for change. The impact of successful schemes is felt beyond the boundaries of the heritage asset itself and can boost the economy of the whole town or city (RICS, BPF, English Heritage, Drivers Jonas).

Resource Value: Revitalization of PIOSS contributes to efficient use of resources by:

- Utilizing the obsolete spaces and reusing resources and materials
- Providing energy efficiency
- Remediating obsolete sites

One of the main resource value of revitalization of PIOSS is the retention of the original building's "embodied energy" which is the energy consumed by all of the processes associated with the production of a building, from the acquisition of natural resources to product delivery, including mining, manufacturing of materials and equipment, transport and administrative functions. By reusing buildings, their embodied energy is retained.

2.5 Obsolescence and Constraints of Industrial Beings

Despite the inherent values/opportunities of PIOSS, there can also be various constraints, challenges and barriers for the preservation / conservation / revitalization of PIOSS. A host of *environmental, organizational, legislative, financial and structural concerns* can add significant costs to the projects and be a real obstacle for and throughout the intervention processes.

It is possible to assess these problems and constraints by analyzing the process of obsolescence of PIOSS. *Obsolescence* is a **multi-dimensional phenomenon/process**. Despite a considerable body of literature (Baum, 1991; Baxter, 1971; Dixon et al., 1999; Feldstein and Rothschild, 1974; Golton, 1989; Hartman and Shapiro's, 1983; Khalid, 1992; Kirby, 1971; Nutt et al., 1976; Raftery, 1991; Salway, 1986; Tiesdell, 1996; Wootton, 1986) there still appears to be a misunderstanding in the use and precision of the term (Mansfield, 2000).

The scope of obsolescence is broad, embracing factors that relate to the structures themselves, the particular site the property occupies and its

surrounding area, the statutory and regulatory framework and more subjective, aesthetic issues. Given such a broad range of inputs, it is unsurprising that the literature has reached no real consensus on its definitions (Mansfield, 2000).

Regarding the multi-dimensional character of obsolescence, it may be more accurate to consider obsolescence as a **process** by which most of the *problems/constraints* of PIOSS are generated. It is inevitably necessary to identify the type/level/range and rate of obsolescence in order to develop relevant strategies for conserving and revitalizing PIOSS. It is obvious that different **types and degrees of obsolescence** might necessitate **different strategic approaches and interventions** (Doratli, 2005).

2.5.1. Functional Obsolescence

In its simplest form, functional obsolescence could be described as a property in its existing form being unable to support the contemporary functional demands of occupation. Implicit in this explanation is the idea of changed occupier requirements, possibly exacerbated by spatial inflexibility within the existing structure. Although this definition is both brief and vague, it provides a good starting point for a more detailed consideration (Baum, 1991; Khalid, 1992). For example, a building with a designed life of, 60 years, can be technically obsolete before half of its design life has passed. This supports the claim that economic forces and technological developments drive the evolution of occupational space need, at internal micro and external macro levels (Raftery, 1991; Mansfield, 2000).



Figure 2.19. Derelict Steel Factory in Bethlehem, Pennsylvania, United States
© Neville Elder/Corbis, 2003



Figure 2.20. Hunedoara, Romania: one of the largest industrial complexes in Romania, was ransacked after Ceausescu's government fell, and lies now abandoned.
© Pablo Corral Vega/CORBIS 2000



Figure 2.21. Examples from obsolete industrial sites
(Source: www.corbisimages.com)

Functional obsolescence may also occur due to a decline in a demand for a building's original use. Reuse opportunities supported by complete or partial refurbishment programs may rejuvenate existing accommodation, directly addressing the functional obsolescence issue with positive effect (Rogers, 1999). Tiesdell et al. (1996) contend that a building is only redundant when it is useless for all purposes. It is an interesting point that an existing structure may not be functionally obsolete for all purposes and potential users may emerge who will enable the building to be placed back into beneficial, if alternative, use (Mansfield, 2000).

2.5.2. Configurational Obsolescence

The configuration of space is closely allied to the issues raised in the examination of functional obsolescence, yet the debate largely concentrates on the more technical aspects, examining the way that efficient space planning is constrained by the specific physical characteristics of a structure. Salway (1986) uses the term functional efficiency which is broadly synonymous with configuration and argues that flexibility for future use and ease of adaptation can be enhanced by considering a number of options. These include regularly shaped units, minimum interruption to open floor areas and localized heating, ventilation and air conditioning systems (Mansfield, 2000).

Building regulations have changed many times since most existing buildings were constructed. Often existing stairwells, exits, parking, electrical systems and other items do not comply with current regulations and ordinances. Changes in building uses can lead to structural concerns if the new use has higher load requirements than the original structure was designed to support. Age may have led to the deterioration of existing building systems, which need to be repaired or replaced.

Another common challenge is satisfying current accessibility requirements to and in existing structures. This typically means having to make changes to the entrances/exits to the site/building.

2.5.3. Economic Obsolescence

The issue of economic obsolescence is one that has been extensively considered. It tends to be the obsolescence factor that has been the subject of most enquiry, yet disappointingly results in the most ambiguous, opaque and contradictory set of definitions. Differences in opinion arise due to varying approaches: economic

obsolescence has been considered to be a pure economic theory issue or, alternatively, a technical and structural problem. For a number of commentators, the key distinguishing feature of economic obsolescence is that it is a function of the capital appreciation of the site, as opposed to the depreciation of the existing structure. It is therefore possible for a new property to become economically obsolete through the rapid enhancement of the site's development value (Flanagan et al., 1989, Mansfield, 2000; Salway 1986)

2.5.4. Environmental Obsolescence

PIOSS often have environmental concerns. Environmental Contamination issues generally result from impacts of industrial facilities associated with:

1. Heavy Industry
2. Light Manufacturing
3. Transportation
4. Military Basis
5. Manufactured gas plants
6. Utilities (electric supply stations)
7. Lumber Yards
8. Landfills
9. Marine and Port Facilities
10. Scrap Industry (Ekman, 2004)

Environmental Obsolescence can be as a result of construction of works, for example the loss of visual amenity or the closure of access, or by the use of the works, causing nuisances such as noise, dust, vibration, smell, fumes and smoke. A further way that sites may suffer environmental obsolescence is through the presence of some type of substances or radiation which may be, or may be perceived to be, hazardous to health. A high-profile example is the erection of high voltage overhead transmission lines and other telecommunication masts.

Other examples include the contamination of land or the proximity of nuclear power plants (Mansfield, 2000).

2.5.5. Locational Obsolescence

Locational obsolescence is primarily an attribute of the functional activities within the area. When the building was originally built, its location was determined in terms of accessibility for other uses, to markets, suppliers, transportation infrastructure and the like. Over time the location may become unfavorable or obsolete for those activities, for which the facility was originally constructed (Doratli, 2005; Tiesdell et al., 1996). Bryson (1997) comments that locational obsolescence occurs when a site suffers from devaluation. The valorization of an area may occur by the process of reinvestment (Mansfield, 2000).

Basic factors that may cause locational obsolescence of a particular building or site are (Bernard Williams Associates, 1994; Mansfield, 2000; Salway, 1986):

- local and regional economic decline,
- depreciation of local and regional infrastructure, and
- various forms of statutory intervention

The impacts of deindustrialization, decentralization policies, strict zoning regulations, economic rent acquisition demands of capital can turn the strategic locational advantages and land value of PIOSS into a threat. There are many cases where this threat resulted in long term obsolescence and/or demolishing of the facility.

2.5.6. Regulatory/Legislative Obsolescence

The third broad heading of possible influences on obsolescence is that of many evolving regulatory issues, emphasizing that it is not only the economic characteristics of property that can lead to obsolescence (Mansfield, 2000).

2.5.7. Aesthetic/Image Obsolescence

This is related to the perception of a building or an area. Uncomfortable traffic circulation, noise, smell, vibration in old quarters can make the building or site unattractive (Doratli, 2005). Image obsolescence is less tangible and more subjective than other types of obsolescence. It is a product of the public's perception of a building or site's image (Chaplin, 2003).

2.6. Evaluation

Determination of the type and level of obsolescence, which is not given much consideration during the problem definition and description of PIOSS, is essential for the sustainability of conservation, since most of the perceivable problems take their root from different types of obsolescence (Doratli, 2005).

Apart from the problems arising from obsolescence, the possible constraints of preserving/conserving/sustaining of PIOSS can be categorized under five groups which are as follows:

Table 2.3a. The common constraints of sustaining industrial beings 1/2

Legislative Constraints:
Lack of understanding of industrial heritage conservation and its potential.
Lack of a broad-based, long-term conservation policy.
Lack of strategic approaches
Fragmented priorities and inadequate co-ordination of government departments involved in present heritage conservation practice.
Lack of mechanism to compensate developers and property owners.
Lack of public involvement in decision-making.
Professional Experience and Skills: it is often difficult to find adequately skilled and experienced people.
Inflexible codes and regulations

Financial Constraints:
High value of adaptation costs. Older buildings may require extensive and costly intervention
Unforeseen and unexpected costs.
Ongoing maintenance costs may be higher than a new building
Difficulty in securing financial backing

Structural Constraints:
Inability to match the performance of a new building
Older buildings may be unable to meet current standards
Availability and price of matching existing materials may create problems
Maintaining the structural integrity of older buildings may be difficult.
The size and character of modern large production units may make preservation of complete units very difficult
Inefficiencies of the Building Shape.

Organizational Constraints:
Promoting truly balanced and effective partnerships is not an easy task.
High levels of mistrust among the stakeholders

Source: Gathered from the following sources (Chu, Uebegang, 2002; Collaton Bartsch, 1996; Minchinton, 2006; Mutal, 2004; Shipley, Utz, Parsons, 2006; <http://www.emeraldinsight.com>)

Table 2.3b. The common constraints of sustaining industrial beings 2/2

Environmental Constraints:
High remediation, cleanup and site assessment costs
Inadequate financing to carry out cleanup and redevelopment activities
Long cleanup time
Site testing costs
A negative public attitude toward old facilities
Uncertainty about liability and procedures
Complex regulations
Site contamination
Project Financing
Process Uncertainty
Lack of knowledge about the intervention process

Constraints on industrial land and property development
Physical and infrastructural constraints
Ownership constraints: landowners' strategies and characteristics.
Valuation constraints
Size of sites and multiple ownership
Planning considerations
Urban economic rent acquisition pressures
Financial constraints

Source: Gathered from the following sources (Chu, Uebegang, 2002; Collaton Bartsch, 1996; Minchinton, 2006; Mutal, 2004; Shipley, Utz, Parsons, 2006; <http://www.emeraldinsight.com>)

The list of possible barriers can seem discouraging but, keeping in mind the multi-layer values of PIOSS, fortunately, there are a number **approaches, strategies and tools** (see Chapter 3) available that can help to alleviate these concerns and protect and sustain industrial beings.

CHAPTER 3

A TYPOLOGICAL FRAMEWORK FOR INDUSTRIAL BEINGS

3.1 Classification of Industrial Beings

In order to develop an integrated approach one of the essential steps is to form a **taxonomy/typology** which can provide a basis for the analysis of PIOSS in the urban context. By this way an analytical framework can be developed which can be practical for the assessment of the character and significance of the PIOSS in the urban content.

There are different approaches to typology and classification of PIOSS depending on the perspective of analyzing (*technological, cultural, economic, social, historical* perspectives). Each scientific discipline tries to classify the industrial structures/sites according to its own interest. The main objective of this section is to develop a taxonomy which brings different typologies of industrial structures/sites together in the urban context. Formulation of an integral typology is considered to be necessary both from theoretical and practical points of view. The main idea is that the character and significance of PIOSS determine the specific methods of assessment, evaluation, intervention and management.

3.1.1 Basic Categories of Industrial Beings

Industrial facilities can be examined under five basic categories:

1. Industrial landscapes
2. Industrial townscapes and settlement patterns
3. Industrial sites/settings
4. Industrial structures (buildings, non buildings, monuments)
5. Industrial artifacts-machinery



Figure 3.1.a Industrial Landscapes
Gdansk Shipyard illustrating linear landscape
©DominiqueAubert/Sygma/Corbis
(Source: www.corbisimages.com)



Figure 3.1.b. Industrial Structures
“A 60 meters high tetrahedron named Haldenereignis Emscherblick and designed by Wolfgang Christ, is at the top of the Bechstrasse slag heap near Bottrop. It has become a landmark, illuminated at night, but also an outlook place from which visitors can gaze over the surrounding landscape. Photo: Babs Bathe, 2007.”
(Source: Storm, 2008)



Figure 3.1.c Industrial Artifacts-Machinery
Machinery © Construction Photography/Corbis
(Source: www.corbisimages.com)

Industrial Landscapes: “Industrial landscapes” are clearly “*cultural and continuing landscapes*” with ongoing economical, social and infrastructural development. As cultural landscapes, industrial landscapes are characterized by the physical evidence of technical and industrial structures and by the connection of these structures with their physical and cultural environment. There are three

basic categories of industrial landscape: linear, geologically determined, and production determined landscape.

Linear landscapes utilizing either water-power sites along streams and rivers or modes of transportation like railways or motorways. Geologically determined landscapes utilizing the raw material basis of a special region like the preindustrial and industrial mining regions Production determined landscapes utilizing special settings of production relevant factors like tradition, skills and knowhow of production and labor in the region. One of the significant examples is the landscape of textile industry (Albrecht, 2008).

Industrial Townscapes and Settlement Patterns: Townscapes are the urban equivalent to landscapes. Many towns and cities developed special areas of all kinds of industry. Some towns are dominated by structures of specialized industry. The functions of an industrialized city as production centre, as marketplace, as centre of transportation networks or as residence of the industrial class together with all necessary infrastructure shaped a very special “landscape” (Albrecht, 2008).

Industrial Sites/Settings: Industrial sites and settings have crucial roles in the formation of the built environment. Their role is not only related with the physical fabric. They have key functions in the social, economic and public structure of the cities.

Industrial Structures, (Buildings, Non-Buildings, and Monuments): The industrial structures, buildings and the machinery in many cases are of great historical and aesthetic value. Industrial monuments are the symbols of industrial revolution and technological progress they have symbolic, visual, social and cultural value.

3.1.2 Integral Typology for Post-Industrial Obsolete Structures/Sites

For the purpose of this study, a typology for PIOSS in the urban context is formulated in relation to the following criteria:

1. Location
2. Construction Time of the Facility & Construction Period of the Surrounding Environment:
3. Spatial Scale of the Industrial Facilities:
4. Basic Facilities/Uses:
5. Architectural Style
6. Structural Form and Construction Style
7. Construction Materials
8. Symbolic/Aesthetic Qualities¹
9. Type and Level of Obsolescence
10. Occupation
11. Ownership
12. Status of Heritage Asset

Character/Significance of PIOSS can be defined as a distinct and consistent pattern of elements that makes one building/structure/site/landscape different from another. The character/significance of PIOSS depends on the combination of the categories of the typology. Hence it can be seen as an expression of the way in which *social, cultural, historical, contextual, spatial, functional, morphological, visual and constructional* characteristics of PIOSS are combined. Character/Significance Assessment for PIOSS comprises a set of tools that are scientifically sound, site-specific and stakeholder oriented, designed to describe the character of a PIOSS. By this way one can specify;

1. **PIOSS Character Types** (generic classifications or typologies)
2. **PIOSS Character Areas** (these are single and unique areas)

¹ For further information about this category see Popelova (2007).

TYPOLOGY FOR PIOSS IN THE URBAN CONTEXT

<p>LOCATION IN THE URBAN CONTEXT: Position in the City: Historic Core Central Business District Inner Suburb Outer Suburb Urban Fringe Rural Periphery</p> <p>Strategic Transportation Hubs/Channels/Corridors Water-front/Sea-front Port Dock Riverside Artificial or Natural Canal/Inlet Railway Connected Sites Highway Junction Nodes</p> <p>Location of PIOSS According to Functional Zones: Commercial Zone Housing Zone Industrial Zone Retail Zone Business Zone Transition Zone</p> <p>CONSTRUCTION TIME OF THE FACILITY & CONSTRUCTION PERIOD OF THE SURROUNDING ENVIRONMENT: Pre-industrial background Nineteenth century industrialization Early Twentieth century industries Post World War II industries The Future</p> <p>SPATIAL SCALE OF THE INDUSTRIAL FACILITIES: Large Scale Industrial Regions/Quarters Industrial Landscapes Industrial Sites Relying on Certain Resources or Production and Transportation Conditions Industrial Structures/Buildings and Their Peripheries Industrial Building/Artifacts</p>	<p>BASIC FACILITIES: Facilities Based on Mining and Facilities Based on Energy Resources (wind mills, water wheels, steam engines etc.) Facilities Based on Production and Manufacturing Facilities Based on Transportation (roads, railway, bridges, channels) Facilities Based on Infrastructure Systems (systems constructed for public services: gas, water, communication etc.) Facilities Based on Production of Construction Industries (Stone pit, brick works, sawmill etc.) Facilities Based on Support Facilities and Logistics</p> <p>ARCHITECTURAL STYLE Traditional Vernacular Classical Modern Neo-Classical Postmodern High-tech</p> <p>STRUCTURAL FORM AND CONSTRUCTION STYLE Multi-storey Mills and Warehouses Daylight Factories Great Halls Single Storey Sheds Non-Buildings (water towers, coal bunkers, winding towers, breakers, lime kilns, grain elevators etc.) <i>(See Stratton, 1997)</i></p> <p>CONSTRUCTION MATERIALS Timber Brick Stone Concrete Steel Iron Glass</p>	<p>SYMBOLIC/AESTHETIC QUALITIES Unintended symbols Stylistic unity Intended metaphors Romantic metaphors Technological metaphors Value of standard The grand total <i>(See Popelova, 2007)</i></p> <p>TYPE AND LEVEL OF OBSOLESCENCE Physical/Structural Obsolescence Functional Obsolescence Locational Obsolescence Economic Obsolescence Physical Obsolescence Visual Obsolescence</p> <p>OCCUPATION Persistent Vacancies Newly Vacant Reoccupation(s)</p> <p>RISKS AND THREATS User damages Unfavorable natural conditions Structural threats Improper use Urban Development Pressures and Economic Rent Demands Decentralization and Strict Zoning Policies and Applications</p> <p>OWNERSHIP Public Private Corporation Individual Ownership</p> <p>STATUS OF HERITAGE ASSET Listed Not-Listed</p>
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Figure 3.2. Typology for PIOSS in the Urban Context

Comments for the Typology Categories: Form – Function – Scale

Spatial Scale of the Industrial Facilities: The size and complexity of most industrial sites is remarkable. More recent sites tend to be larger or more complex than earlier sites, because of technology and increasing production requirements. This characteristic of the PIOSS poses some difficulties for the intervention processes

Basic Facilities/Uses: The general challenge with most PIOSS is that they are purpose built. This can be either a problem or an opportunity depending on how one approaches it. By their very nature industrial sites are built for a very specific function or purpose. Once that function or purpose ceases to exist, other dilemmas arise, even when such places continue in some form of their previous use

Structural Form and Construction Style: Like other typologies of buildings Industrial Buildings also have some special attributes which give them their special character. These attributes are important as they have an influential role throughout the actions to be taken to sustain them.

From the adaptive reuse perspective, the opportunities and constraints attached to the re-use of obsolete industrial buildings vary by building type. As Stratton notes, multi-storey mills and warehouses are enthusiastically lauded for their interesting architecture and innovative use of iron, and for their ability to accept a variety of internal treatments and to be easily sub-divided (Ball and Walljes, 1997). Great halls - railway sheds, works and erecting shops - contrast in their re-use potential. For example, large shed constructions are usually in central urban locations, and some of the huge erecting shops left in the wake of engineering closures are large and difficult to adapt (Ball, 1996). Single-storey sheds - the archetype of the modern factory structure - are more readily adaptable

to industrial use but the lack of conventional windows and partitions constrains their adaptability for other uses to a degree

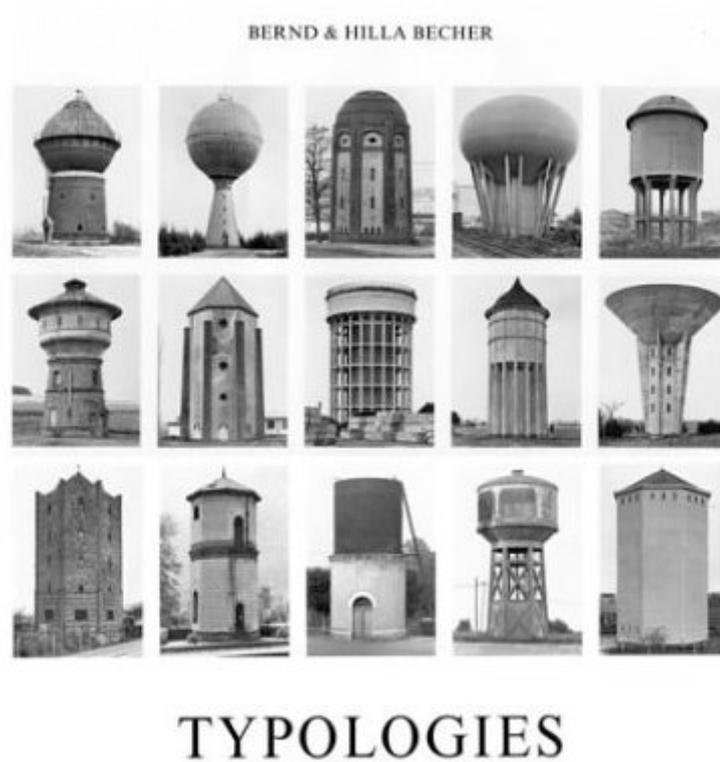


Figure 3.3. Front Cover of the book “Typologies of Industrial Buildings”
Bernd and Hilla Becher's photography can be considered conceptual art, typological study, and topological documentation
(Source: Bernd Becher and Hilla Becher, MIT Press, 2004)

Construction Materials: One of the main reasons of the negative attitudes towards industrial sites lies within their very fabric. The use of materials such as brick and stone in earlier 19th century industrial buildings engenders these sites with a certain presence, a sense of longevity and solidity that the iron and glass

of later industrial buildings does not. In general a well detailed masonry building can be seen to have more 'heritage' value than the iron sheds of a factory

Type and Level of Obsolescence: One particularly topical issue regarding re-use of industrial sites is the level and type of obsolescence which has been discussed in the previous chapter.

Evaluation: The categories of this typology should be considered both at the assessment and intervention processes. By this way, *first of all* the basic characteristics of the PIOSS can be appreciated; secondly the significance, potentials and/or constraints of the PIOSS in the urban context can be presented, and *finally* certain factors which are influential for the intervention process can be identified.

3. 2. Basic Strategic Approaches of Sustaining Industrial Beings

There are different strategic approaches towards PIOSS. Some of them develop an **area-based approach**, others are based on a **sectoral approach**; some of them are directed to obsolete structures/sites, others have a more general definition of its scope. The basic strategic approaches which have been identified are:

1. urban-cultural strategies
2. heritage tourism strategies
3. urban catalyst/nucleus strategies
4. brownfield redevelopment strategies
5. conservation led regeneration strategies

These strategic approaches with different motives and prospects can have common forms and objectives. The decision-making procedures and the tools of intervention for the re-use of PIOBS are often part of these strategic approaches. In practice, this diversity of strategic approaches underlines the necessity of an *integrated and multi-dimensional* approach towards PIOBS. Thus so called “*best practices*” in the literature are the cases where one or more combination of these strategies is applied.

3.2.1. Urban-Cultural Strategies

As former industrial cities have experienced radical changes to the bases of their economies, the imperatives of finding new roles and functions has often led to the adoption of cultural policies. Urban Cultural Strategies and *Culture-Led Regeneration* is a multi-dimensional approach to the renewal or revitalization of PIOSS wherein *art, culture and creativity* play a leading role in transformation. It is a practice focused on dynamic places that stimulate, catalyze and drive the emergence of vital, creative post-industrial spaces throughout cities and communities (Artscape, 2007).

3.2.2. Industrial Heritage Tourism Strategies

Many urban localities are focusing their efforts to nurture and develop tourism on the perceived strength of local attractions linked to some dimension of industrial heritage (Ball and Stobart, 1996b). As the content and theme of a recent BURA conference implies, heritage tourism projects should be viewed as potential catalysts for urban regeneration (Ball, 1997; BURA, 1996).

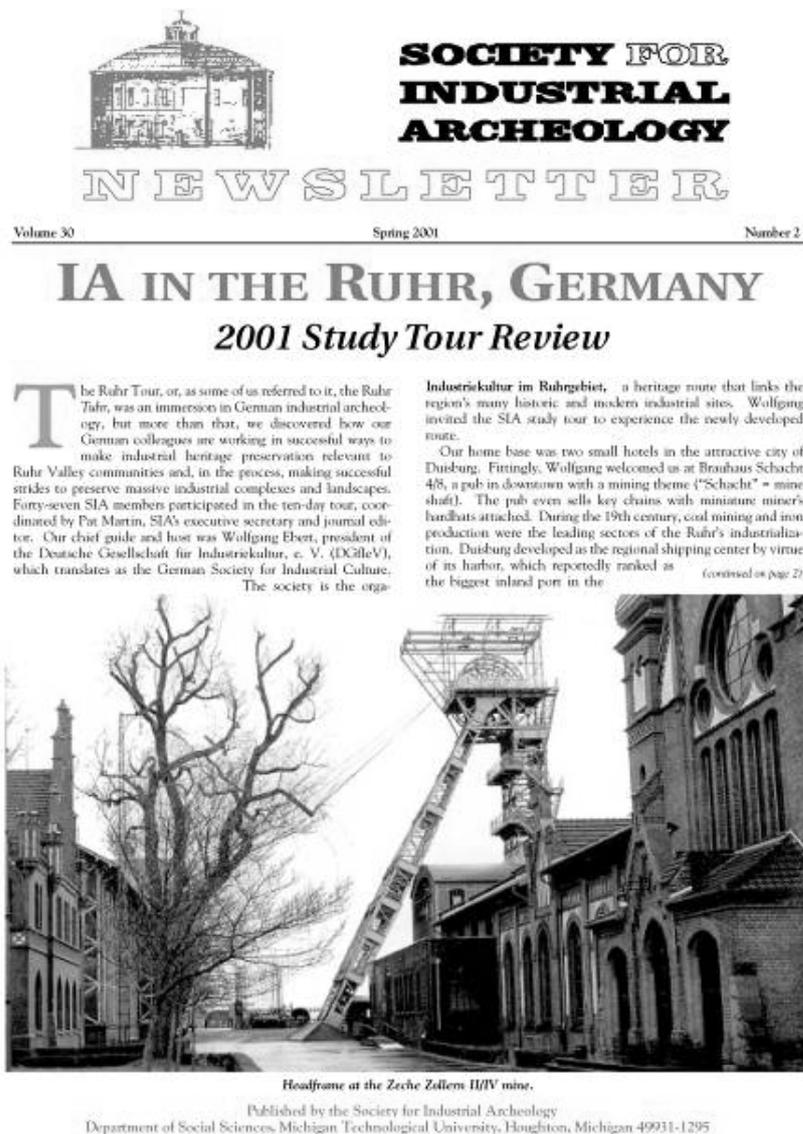


Figure 3.4. The Ruhr Tour: Route of Industrial Heritage (Industriekultur im Ruhrgebiet) a heritage route that links the region's many historic and modern industrial sites (Source: www.corbisimages.com):

This relatively new form of tourism is viewed as a helpful tool for *regional restructuring* as well (Edwards & Llorde's, 1996; Goodall, 1994; Harris, 1989; Mans. eld, 1992). Especially starting from 1990s industrial heritage is developing quickly as an attractive part of the tourism industry. This was mainly due to experiences with industrial heritage tourism in the Ruhr area which culminated in the opening of a complete regional '*Route of Industrial Heritage*' in 1999 (Hospers, 2002).



Figure 3.5. Lorraine (France)
(Source: www.corbisimages.com)



Figure 3.6. Catalonia (Spain)
© Edifice/CORBIS
(Source: www.corbisimages.com)

Inspired by this alleged 'best practice', more and more regions in Europe have turned to industrial heritage tourism as an additional restructuring device. Initiatives in this field often emerge from private associations for industrial heritage whose plans are funded by regional, national and European authorities (Goodall, 1994). Recently, programs have been launched in this way for example in Overijssel (the Netherlands), West Flanders (Belgium), Volklingen (Germany), Steyr (Austria), Telford (UK), Catalonia (Spain), Crotona (Italy) and Lorraine (France) (ERIH, 2000; Hospers, 2002).

Obviously, all regions that apply some strategy of industrial heritage tourism have experienced a different path of historical development. As such, each of them disposes of a unique set of industrial monuments that can be used for recreational activities. Nevertheless, in the European context some general **categories** of industrial tourist attractions may be distinguished (Soyez, 1986; Edwards & Llude´s, 1996). The *first* group comprises industrial relicts in the field of **production and processing**. These attractions are rather popular among visitors and include numerous sites located underground (mines) or on the earth's surface (e.g. plants, blast-furnaces and shipping yards). Often these workplaces have been restored and transformed into museums demonstrating the history of industrial occupations. Some abandoned industrial sites provide tourists also with other amusement, such as films, concerts and catering. (Edwards & Llude´s, 1996; Hospers, 2002)



Figure 3.7. Volklingen (Germany)
Carmen Redondo/CORBIS
(Source: www.corbisimages.com)



Figure 3.8. Overijssel (the Netherlands)
© Florian Monheim/Arcaid/Corbis
(Source: www.corbisimages.com)

Transport attractions make up the *second* group of industrial tourist attractions. They refer to industrial legacies in the field of rail, water and roads aiming to give the visitors a nostalgic or novel transport experience. The *third* category consists of **socio-cultural attractions** associated with a region's

particular industrial past. Here, examples are former working-class houses and employers' estates (Hospers, 2002).

Evaluation: Theoretically, this strategy could resolve at least some of the controversial problems that declining industrial sites encounter caused by the transition to a global service economy. These problems include segregation of PIOSS from the urban fabric, decentralization of industry and shifting economy from production into consumption (Hospers, 2002).

3.2.3. Urban Catalyst/Nucleus Strategies

The inclusion of heritage assets in regeneration schemes provides a focus and catalyst for sustainable change. PIOSS are considered as a catalyst for urban redevelopment by being a relevant element of the *genetic code* of the city, according to which rebuilding from degradation should be performed (Loures, 2008). The impact of successful schemes is felt beyond the boundaries of the heritage asset itself and can boost the economy of the neighborhood or city.

Tate Modern Museum which is the adaptive reuse of Bankside Power Station has been one of the most successful cultural projects of modern times due to its effect on the transformation of Bankside at Southwark in London. Not only has it become a major new venue in its own right, it has anchored the wholesale regeneration of Bankside and allowed economic development to spread deep into inner south London. By global standards the new institution has been a hugely successful example of economic and social renewal. (Travers, 2005)

Industrial decline, in parallel with new technology and environmental concerns, led to the demise of the Bankside power station. Sir Giles Gilbert Scott's monolith, built in two phases between 1947 and 1963, had closed as part of the more general modernization of the capital. Like other generating plants at Battersea and Lots Road, Bankside became redundant, stood, empty, grim and

challenging, directly across the river from the City of London. Tate's decision to open a new gallery of modern art saved Bankside from decay or, possibly, demolition. Tate's decision to locate its new gallery in such a neighborhood was, by any standards, brave. McKinsey & Company, the upscale consultants, provided an economic impact study which suggested the arrival of Tate Modern could radically change the local economy. (Travers,2005)

The project was designed, built and opened between 1995 and 2000 and cost almost £134 million. Since it opened in May 2000, Tate Modern attracted more than twenty million visitors until 2005. In only five years, it has drawn attention to a previously undeveloped area of London. (Travers,2005)

Since Tate Modern opened, McKinsey has revisited its 1994 study which had assessed the potential economic impact of Tate Modern. The consultants concluded the gallery's effect on the local economy had significantly exceeded expectations. The economic benefit is now estimated at between £75 and £140 million, about half of which was specific to Southwark. The 1994 estimates had suggested an overall economic benefit of £50 million, of which £16–35 million would have been local to Southwark. The strategy of capturing the economic benefits of the project within the local neighbourhood had been successful. (Travers, 2005)



Figure 3.9. Tate Modern (London)
(Source: www.corbisimages.com)



Figure 3.10. Tate Modern (London)
(Source: www.tate.org.uk)

3.2.4. Brownfield Development Strategies

Brownfield development has emerged as a core feature in strategies to regenerate PIOUS. Brownfield development is not simply a matter of ‘reusing’ post-industrial obsolete sites but involves making decisions over what practical steps should be taken, what can be achieved and what sorts of end use should be promoted. Brownfield development has the capacity to tackle a range of interrelated problems (see Pahlen & Glockner, 2004, for a broader European-level discussion). The factors that are considered in brownfield development are urban growth management, social inclusion and resource conservation, which promote the ‘**compact city**’ and ‘the **recycling** and/or **restructuring** of **underused** or **derelict** urban sites and areas’ (Commission of the European Communities, 1999; Raco, 2006)

Many of the brownfield development strategies include key objectives related to structural and spatial urban policies and environmental restoration such as:

- Restricting urban sprawl by reusing obsolete sites
- Functional and design improvement of the affected urban structures by eliminating the derelict sites and associated measures aimed at general urban renewal
- Preserving the architectural heritage of the industrial revolution by finding new uses for historic industrial buildings
- Creation of employment opportunities
- Improving environmental quality (Grimski, Ferber, 2001).

Through careful management and policy, the legacy of the past can play an important role in stimulating economic regeneration of brownfield sites. Brownfield sites often portray negative connotations of past industrial activity and its negative impact on an area. This same industrial activity, carefully managed, can provide local distinctiveness, adding value through the creation of

positive images and through the restoration, promotion and interpretation of the past history of a site.

3.2.5. Heritage Led Regeneration Strategies

Over the last 40 years conservation activity has been shifting ever more from being characterized as an act of preservation towards being characterized as part of a broader vehicle for urban regeneration and economic development (Delafons, 1997; Strange, Whitney, 2003). The concept has been important in widening the approach to cultural-heritage protection from individual assets to whole areas and environments, which in turn is now being developed in the context of policies and strategies for '*integrated conservation*' and '*sustainable development*'. (Pickard, 2002; Granada Convention: article 10).

There are examples of comprehensive regeneration schemes which have **swept away** industrial heritage assets in the name of efficiency, cost, viability, environmental contamination and meeting occupier requirements. The growth of **integrated conservation** and heritage led regeneration strategies increase the awareness and appreciation of multi-dimensional values of PIOSS, and caused the reconsideration of urban renewal and development policies as a whole. It has also led to more sustainable policies for the regeneration of historic industrial buildings/structures/sites/landscapes to be adopted. New laws, administrative measures, state funding programs and tax relief policies were instituted to promote heritage led regeneration strategies (REVIT, 2004).

3.3. Taxonomy for Modes of Intervention

Introduction:

The aim of this section is to formulate a **taxonomy** for the **modes of interventions** organized according to their **types/levels** and **scales**. By this way it can be possible to develop a framework capable of discussing and assessing

the different means and options involved in **sustaining** PIOSS (Breda-Vasquez, Conceicao, Batista, Branco-Teixeira, 2001).

There are numerous programs, mechanisms and actions of interventions that can be applied on **post-industrial obsolete structures and sites (PIOSS)**.

The diversity of interventions underlines the existence of **different** and/or **conflicting** meanings and options regarding the approaches towards PIOSS: the attitude of conservation, the main agents involved and its organizational settings. On the other hand, this diversity draws attention to the various possibilities for the combination of the different types of intervention, depending on the characteristics of the PIOSS and the strategic options to be considered (Breda-Vasquez, Conceicao, Batista, Branco-Teixeira, 2001)

The term *intervention* can be defined as the range of actions undertaken by different actors/stakeholders (public, private or public-private partnerships) against a specific building or site, which will consequently influence negative or positively its effective significance, condition and environment. The range of actions does not have the same effect/ impact on the PIOSS, therefore it is thought to be vital to organize and scale them accordingly (Rodgers, 2007).

The interventions and its range of actions are directly related to the aims of the actors performing the relative actions. It varies from case to case and should not be generalized (Rodgers, 2007). Fielden states that each case is an individual case; and that all factors should be taken into account before choosing the degrees of intervention. The level/scale of intervention that might be considered as positive in some cases might be considered most negative in others. As long as the chosen level and scale of intervention(s) is synchronized with the *contextual characteristics, significance, condition and level of obsolescence* of the industrial site, there shall be no dilemma (Rodgers, 2007).

The debate over *continuity versus change; development versus preservation; re-use versus rebuild* is a controversial matter along with urban regeneration, sustainability and heritage management in its various social, economic, environmental, spatial and architectural forms (Papageorgiou, 1971).

Built environment consist of **tensions** and **clash of values**:

- The clash of values between “land & property exploitation for capital gain” versus consideration of contextual, cultural, social and historical character.
- The tension between development and preservation
- The tension between old and new
- The tension between the familiar and unfamiliar
- The tension between the uses of heritage to legitimate socio-political positions and conflicting ideologies of opposing groups

These tensions and clash of values sometimes form unusual *juxtapositions* in urban space like: old lies next to new; new adapts old,; new uses old in new ways or new ignores old

Actually it is the nature and scale of this conflict which are major problems, remaining unresolved in theory. Hence there is no generally accepted theory of how to manage built environment for continuity and change; for development and preservation. Although the common depiction of tension as a simple dichotomy of preserve or redevelop is a gross over simplification, the production and management of the changing-transforming urban space are processes in which conflicting ideologies are deeply embedded (Larkham, 1996).

By using appropriate mechanisms and tools of planning and innovative design these tensions can be regulated and this in return can contribute to the appreciation of industrial heritage and richness/diversity of the built fabric.

The natural *life cycle* of the built environment involves the stages of construction, use, obsolescence, decay and demolition respectively. Over this life cycle the condition of the fabric, as a whole or in its separate parts, or within parts do not remain constant. Maintenance lengthens physical life but after a certain point, before it reaches 'exhaustion', the fabric becomes '**obsolescent**' (Lichfield, 1988). At this point an intervention is necessary to enable the fabric to enter a new stage of life which can be named as the second life cycle on the original site.

Types of Intervention:

In the broad field of urban regeneration and building re-use, there are dozens of terms that are used rather interchangeably to describe various modes of interventions, activities and projects. After examining the related literature 53 actions are identified with regard to the transformation of urban space. Transformation of urban space consists of interventions ranging from minor repairs to major constructions. It is possible to understand the diversity of the range of actions by the long list of "re" terminology

Table 3.1. The ‘Re’ Terminology

1	Reallocation	20	Refurbishment	37	Reposition
2	Rearrangement		Regeneration	38	Repossession
3	Reappropriation	21	Rehabilitation	39	Reprocess
4	Rebirth	22	Reinforcement	40	Reproduction
5	Rebuilding	23	Reinstallation	41	Reshuffle
6	Reconstitution	24	Reinstatement	42	Restitution
7	Reconstruction	25	Rejuvenation	43	Restoration
8	Recovery	26	Rekindling	44	Restructure
9	Recuperation	27	Relocation	45	Resurgence
10	Recycle	28	Remodel	46	Retention
11	Redecoration	29	Renaissance	47	Retrieval
12	Redeployment	30	Renewal	48	Reuse
13	Redistribution	31	Renovation	49	Revamp
14	Reduce	32	Reordering	50	Revitalization
15	Re-Enactment	33	Reorganization	51	Revival
16	Re-Establishment	34	Repair	52	Revivification
17	Refill	35	Repetition	53	Re....
18	Reformation	36	Replacement	54	Re....
19	Re-function	37	Replenishment	55	Re....

It is possible to classify this long list of actions into several broad categories under the headings *keep, change, destroy and return* (to return an industrial building, involves a decision to re-create something that was previously demolished).

Table 3.2. Broad Categories of Urban Intervention

Keep	Change		Destroy	Return
preserve	restore	repair	dismantle	reerect
save	rehabilitate	redevelop	demolish	reconstruct
protect	revive	stabilize	tear down	copy
record	transform	modify	eliminate	
conserve	recycle	consolidate	remove	
rescue	rebirth	renew	raze	
	revitalize	renovate		
	convert	move		
	reuse	remodel		
	adapt	refurbish		

There are many scholars who defined different actions of interventions and describe the levels/degrees/ranges and/or scales of these interventions (Douglas 2006, Fielden, 1982; Henket, 1986; Roders, 2006; 2007) International charters and documents concerning conservation, of cultural heritage also define the same taxonomy

Fielden, (1982) was one of the leading scholars who has defined and organized the interventions. According to Fielden, a conservation project could include seven levels of intervention starting from *preservation* up to *reconstruction*: Prevention of Deterioration; Preservation of the Existing State; Consolidation of the Fabric; Restoration; Rehabilitation; Reproduction and Reconstruction

The Appleton Charter (1983) describes the activities ranging from *maintenance* up to *addition* under five levels of intervention: Preservation; Period Restoration; Rehabilitation; Period Reconstruction and Redevelopment

Similarly in the Charter for the Conservation of Places of Cultural Heritage Value (1992), the degrees/level of interventions is classified under seven

categories: Non Intervention; Maintenance; Stabilisation; Repair; Restoration; Adaptation and Reconstruction (Rodgers, 2007).

AIM	ACTIONS
PERFORMANCE PRESERVATION	CLEANING MAINTENANCE
PERFORMANCE ADAPTATION	RENOVATION REHABILITATION DEMOLITION NEW CONSTRUCTION

Figure 3. 11. Building Performance management
(Source: Adapted from Henket, 1998)

Henket, (1998) has used the concept of “*building performance management*” in order to organize the level of interventions. Correspondingly, he proposed a set of definitions systematized in accordance with the scale and aim of the interventions. Henket classified the levels of intervention under two major headings which are *preservation* and *adaptation*

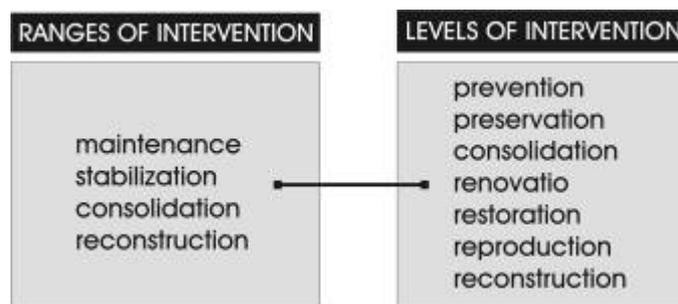


Figure 3. 12. Ranges and Levels of Intervention.
(Source: Adapted from Douglas, J. 2006)

Douglas, (2006) categorizes the types of interventions under two scales: The *range* of interventions and the *levels* of intervention. The *range of interventions* is identified under *four major fields* of actions: *Maintenance; Stabilization; Consolidation and Reconstruction*. The *levels of intervention* are specified under *seven categories*: *Prevention, Preservation, Consolidation, Renovation, Restoration; Reproduction and Reconstruction* While organizing the seven levels of intervention he presented the relationship between the amount of *original fabric retained* from the pre-existence and the amount of *new material produced* at the new existence. Accordingly the seven levels of intervention for Douglas are (Roders, 2007):

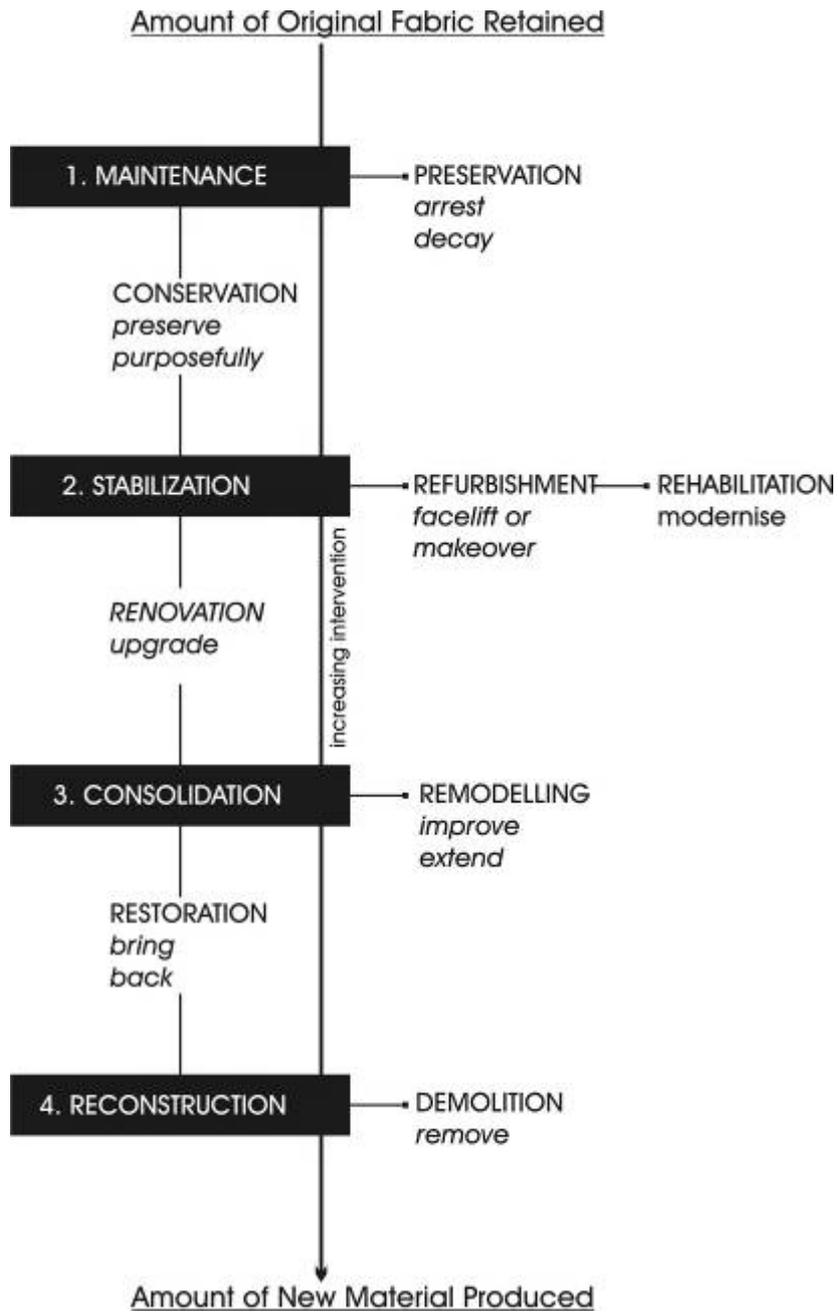


Figure 3.13. Integrated Range and Level of Interventions
 (Source: Adapted from Douglas, 2006)

In the literature many other terms are used to describe different levels of intervention. Terms such as *refurbishment*, *rehabilitation*, *renovation*,

restoration etc. are frequently used as being synonyms with one another (294 200712090) Moreover there are numerous interventions which can fit into more than one major fields of the range of interventions (Douglas, 2006). For instance, conservation fits in both maintenance and stabilization; renovation fits in both stabilization and consolidation; and restoration, fitting in both consolidation and reconstruction (Roders, 2007).

Table 3.3. Types of intervention from Deprivation up to Demolition.

DEPRIVATION
non-intervention
prevention
deprivation
PRESERVATION
preservation
maintenance
period restoration
CONSERVATION
consolidation
rehabilitation
renovation
stabilization
refurbishment
restoration
period reconstruction
repair
remodeling
adaptation
RECONSTRUCTION
reproduction
redevelopment
new construction
DEMOLITION

(Source: Adapted from Douglas, 2006)

This categorization would allow us to recognize easily where any action proposed with regard to a particular PIOSS fits. At this point once again it is important to remind that understanding the reasons behind obsolescence is crucial because different causes of obsolescence require different modes of interventions. Moreover different interventions may have different aims, functions, methods and tools.

In consequence the appropriate level of intervention can only be chosen after careful consideration of the merits of the following:

1. Type and Level of Obsolescence
2. Constraints and Barriers of Intervention
3. Multi-Layer Values/Benefits/Opportunities of PIOSS
4. Industrial Character Assessment

CHAPTER 4

AN ANALYTICAL APPROACH FOR THE ANALYSIS OF INTERVENTIONS ON PIOSS

4.1. Categorization of the Interventions on PIOSS

The aim of this chapter is to analyze different case studies with an analytical approach. Although each case has a different context and character, with the help of this categorization the cases can be used as guiding examples at different contexts. It is possible to categorize different cases studies/examples under six major groups which are:

- 1. Diversity of Functions**
- 2. Basic Change of Use**
- 3. Spatial Scale of the Projects**
- 4. Type of the Intervention**
- 5. Character of the Area and Major Emphasis of the Projects**
- 6. Architectural Design Approaches**

4.1.1. Diversity of Functions

When we examine revitalization projects for PIOSS according to the diversity of uses, there are two main types:

1. PIOSS adapted as **Mono Functional Sites**
2. PIOSS adapted as **Multi Functional Sites** with diversified mix of uses and functions.

The emergence of the concept of multi-functionality started after the post-war period, when growing land pressure and environmental problems transformed spatial segregation of functions into a considerable problem. Currently, high demands on PIOSS show that in the future, these sites will have to serve several functions simultaneously (Loures, Silva, 2008).

Many case studies demonstrate that creating mono-functional sites entails a high level of risk. It makes a city more vulnerable to internal and external changes and too dependent on one or just a few sectors. Diversification of uses and functions increases an area's resilience making it more adaptable to change. Creating a balanced mix of functions that is well integrated with the rest of the city is an important aspect of sustainability (Swiss Federal Office for Spatial Planning, 1999). The case studies demonstrate that creating a more adaptable mix of uses and managing regeneration flexibly enables stakeholders to deal with inherent uncertainty more successfully (Tötzer, Gigler).

4.1.2. Basic Change of Use

In the adaptive re-use projects revitalization of the site for production facilities should be reconsidered. Public and multi-functional uses should be encouraged. Keeping the post-industrial structure only as an envelope for the adaptive-use

should be avoided. The historical development of the post industrial site, its relations with the environment, and the position in the urban fabric should be considered during the revitalization of the site. Legal and financial regulations should be installed by the authorities to prevent these industrial heritage transformed only to serve for speculative interests. The categories according to basic change of use are;

1. Tourism
2. Education
3. Cultural Facilities
4. Commercial
5. Leisure
6. Residential
7. Office
8. Continued Use on the Original Site without significant alteration. Most Significant Examples: Bridges and Canals (Minchinton, 2006)
9. Formal Preservation without continued use, except sometimes for demonstration purposes.



Examples of Science, Technology and Transport Museums, which provide accommodation for machinery and equipment, either on public display or in storage.

Figure 4.1. Ironbridge Gorge Museum
© Skyscan/Corbis
(Source: www.corbisimages.com)



Figure 4.2. Eco-Museum of Le Creusot-Montceau les Mines
(Source: http://www.ecomusee-creusot-montceau.fr/rubrique.php3?id_rubrique=9)

4.1.3. Spatial Scale of the Projects

According to spatial scale, there are roughly *five* kinds of categories: the *first* is the revitalization of industrial regions; the *second* one is the industrial landscape reclamation projects; the *third* is the sites/settings relying on certain resources and production and transportation conditions, such as industrial warehousing areas on waterfronts, ports and so on; the *fourth* is the cases of adaptive reuse of industrial structures and the *last one* is the preservation and/or re-use of single industrial monuments and artifacts (Wang, Jiang, 2007).

Ruhr Area in Germany is the most significant example for revitalization of the industrial regions. Ruhr region has been the largest coal mining highly industrial area of Northern Germany, in North Rhine-Westphalia covering about 800 km². Yet, from the 1960s on, it has suffered much from regional declining and even a bad reputation of polluted air and damaged ecological environment. (Lu, Y. *et.al.*, 2006).



Figure 4.3. Ruhr Emscher Park
(Source:www.corbisimages.com)

In 1989, the massive regional regeneration project The International Building Exhibition (IBA) Emscher Park had started which is widely cited as an example of innovative revitalization around the world (e.g. Gans, 2004; Zlonicky, 2004;

Knapp et al., 2004; Brown, 2001). The park has won awards from the International Union of Architects, and is cited by the United Nations Environment Program as best practice. (<http://www.uneptie.org/pc/ind-estates/casestudies/Emscher.htm>.) (Ling, Handley, Rodwell, 2007)

Within the scope of the project , seven master plans have been developed:

1. Emscher Landscape Park; reconstitution of natural landscapes
2. Landscape and environmental recovery of watercourses;
3. Leisure area on the Rhine-Herne Canal;
4. Industrial legacy; the Route of Industrial Heritage link 19 sites
5. Work in the park; industrial or service activities in former industrial buildings
6. Innovations in relation to housing; rehabilitation of working class neighborhoods, trying to recreate Garden cities
7. Development of social and cultural activities

Approximately 120 projects have been developed and implemented on five sites in the area between the cities of Duisburg and Kamen, in 800 km². IBA's projects illustrate the latest thinking in the ecological and economic regeneration of a former industrial region. Many of these innovative urban and architectural designs were fostered by IBA's workshops, competitions, and spatial planning guidelines (<http://www.epa.gov/brownfields/partners/emscher.htm>) (U.S. Environmental Protection Agency).

In 1989 IBA was given a ten year mission to achieve the ecological, economic, and urban revitalization of the Ruhr valley and the Emscher River through the creation of collaborative partnerships with local authorities, private industry, professional associations, environmental groups, and citizens. Seventeen local authorities of the Ruhr area joined the building exhibition at its creation. (<http://www.epa.gov/brownfields/partners/emscher.htm>) (U.S. Environmental Protection Agency).

The policy goals were the economic recovery of this extensive industrial area is central to the policy goals of the project and, is intrinsically linked to the capacity for stimulating the restructuring of the environment, using the word in its broadest sense of natural and urban environments.

As a creative planning for the region, the IBA aims at accelerating the post-industrial transformation of the northern part of the Ruhr Area along the river Emscher. It also contributes to the post-industrial restructuring of the region. One thing worth mentioning is that the project renovates and reuse the industrial heritages, with an overall consideration, that is to conserve the industrial heritage as a whole, including the buildings, technical facilities, industrial landscape, workers' residence and etc. It gives us a new scope of redeveloping the obsolete heritage sites in the cities. Besides to react to the regional and urban culture, the project puts more emphasis on developing its cultural function, so as to meet the demand of social development. (Lu, Y. *et.al.* ,2006).



Figure 4.4: Ruhr Emscher Park
(Source: Storm, 2008, www.corbisimages.com)

The reclamation of obsolete post-industrial landscapes which is another major category of intervention, specifically ones that have been shaped by a very distinct use over time, both physically and culturally, poses a set of particular challenges and questions. Contemporary approaches to abandoned and derelict

sites are mostly driven by the idea of reclaiming space for a variety of uses. (Langhorst,2003)

4.1.4. Type, Level and Attitude of Intervention

Types of Intervention: The conservation of PIOSS varies in the degree of intervention. As discussed in the previous chapter there is a wide spectrum of types of intervention. After scrutinizing the related literature, the most preferred/used techniques are depicted as follows: *maintenance, structural fixation, complete rebuilding, restoration, up-grading, adaptive re-use, adding a new building, transferring of a building and its machinery to a different site where preservation is not possible.*

Level and Attitude of Intervention: According to level and attitude of intervention cases can be categorized under four headings:

- Complete alteration and transformation to new technological and production methods without keeping any of its characteristics or its demolition.
- Re-use without keeping any of the main characteristics except for the main morphological plan of the buildings.
- Re-use where the characteristics of the building are used only for decorative uses
- Re-use with full respect to its original industrial characteristics and its contextual features.(Karachalis, Kyriazopoulos, Lourantos)

4.1.5. Architectural Design Approaches

4.1.5.1. Old Kernel - New Shell

This typology is most often identifiable by a technologically 'new' roof structure constructed over an existing building. The kernel can consist of anything from a single building to a larger complex. Existing structural elements may maintain their structural function in their reincarnated lives, but in many cases they require some retrofitting to do so (if not for structural stability, then to meet current code requirements). As a result, major circulation patterns through these projects tend to be guided by the old fabric. This approach is best suited to cases where the existing structure has maintained much of its structural integrity and where the major circulation patterns are suited to future organizational needs. A new shell can often accommodate new services and secondary circulation without compromising the existing building(s). This typology is not well suited to historic preservation projects as it almost inevitably alters the outward appearance of the structure, unless the new roof is entirely contained within the boundary of the historic skin.



Figure 4.5. National Studio For Contemporary Arts, Le Fresnoy, Lille, France
Bernard Tschumi Architects, 1991-1998
Originally: Factory workers' social complex
Currently: Post-graduate school for film and visual arts.
(Source: www.corbisimages.com)



Figure 4.6 Media Center
Hamburg, Germany
me di um architekten, 1983-1992
Originally: Zeise ship propeller factory
Currently: Film and Theatre Institute, restaurants, shops, offices, apartments.
(Source: www.corbisimages.com)

4.1.5.2. Old Shell - New Kernel

This typology is seen in situations where the existing building presents a structurally uninterrupted space of some significant size. Similar to the Old Kernel - New Shell typology, the space between the old and the new is often highlighted as an expressive element of reuse. Other projects take advantage of this space to provide a climatic buffer between the exterior of the old shell and the interior of the new. Due to the physical attributes and conditioning opportunities of this typology, it is quite well suited to former utilitarian or industrial buildings that often do not have any provision for human habitation inherent in their design. It is also a quite popular approach to historically protected landmarks, as it enables a modern deployment of interior grammars without compromising the external image of the building. Since many of the old shells that can be tackled by this design typology have very few internal structural elements, there are often no limitations to the form of the new kernel. As a result, this typology tends to yield varied looking results.

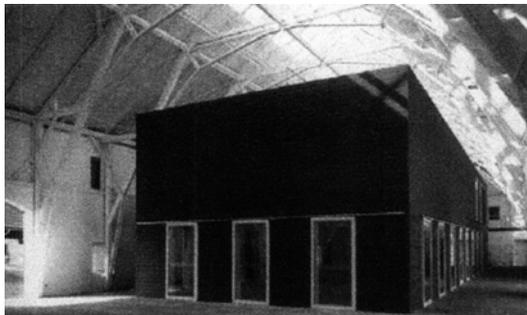


Figure 4.7. Church Community Centre
Schwindkirchen, Germany
arc Architects, 2001
Originally: Barn
Currently: Parish community centre
(Source: www.corbisimages.com)

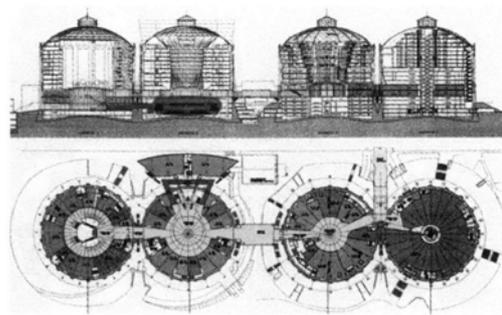


Figure 4.8. Gasometer Housing Project
Vienna, Austria
Jean Nouvel, Coop Himmelblau,
Manfred Wehdorn, Wilhelm Holzbauer
1995-2001
Originally: Vienna municipal gas works
Currently: Apartments, offices, entertainment
(Source: www.corbisimages.com)

4.1.5.3. Additions

Reuse projects that fit into this category are often either pedestrian results of a need for more space or physical manifestations of a designer's polemic. The pedestrian projects are usually simple additions, sometimes interesting due to a specific choice of material or configuration, but more often hardly befitting of the categorization as reuse projects because of their detachment from the original building.



Figure 4.9: Parasite
Rotterdam, The Netherlands
Korteknie Stuhmacher Architects, 2001
Base: Abandoned industrial workshop
Addition: Office and exhibition space
(Source: www.corbisimages.com)



Figure 4.10: Reichstag Parliament House
Berlin, Germany
Foster and Partners, 1990
Base: Parliament House
Addition: Circulation within the Office
Space
(Source: www.corbisimages.com)

4.1.5.4. Incisions

Incisions are usually polemical projects that can be quite emotionally charged, and are usually not the result of spatial or economic need; rather, they are the results of social, cultural, and historic commentary. As such, the interventions that they propose are succinct and pointed, often affecting the reading of an old space much more than its actual fabric. These projects tend to go beyond mere

contrast to outright confrontation to ensure the clarity of their message and the relationship they establish with the old fabric.



Figure 4.11. DOK Library Centre
Delft, The Netherlands
Aat Vos of Architects, 2009
Originally: Hoogovenpand, 1970s
mixed-use building
Incision: Library Centre
(Source: <http://www.architectureweek.com>)



Figure 4.12. Documentation Center
Nuremberg, Germany
Gunther Domenig, Graz 2001
Base: Unfinished Congress Hall
Incision: Circulation
(Source: www.corbisimages.com)

4.1.5.5. Re-cladding

Re-cladding can be classified as a common attitude in generating additions and incisions on the existing structure and also can be categorized as a different strategy that is applied partially or to the whole of the build structure. Practical necessities for certain novel functions may generate a need for replacing the existing skin and surface of the building. However the level of intervention becomes crucial as these projects carry the tendency to easily lose the authenticity of the original building. They either create a new shell which interacts with the original construction or the interaction occurs in the contrast created combining the old material with the new.



Figure 4.13 Montgomery Campus College of Arts and Crafts, California, USA
Tanner Leddy Maytum Stacy Architects,
Ove Arup & Partners, 2009
Originally: Bus Repair Shop
Currently: Arts and Crafts Collage
(Source: <http://www.architectureweek.com>)



Figure: 4.14. Chimney Pot Park, Salford, Manchester, UK
Shedkm Architects for Urban Splash,
Originally: 19th-century terraced houses built for workers in the local mills
Currently: Terraced housing
(Source: <http://www.archicentral.com>)

4.1.5.6. Integrated Infill

Most common adaptive reuse projects fall under the category of integrated infill, in which much of the original building's skin and structure is kept unaltered, while the internal configuration of spaces is revamped, sometimes significantly. These projects tend to rely less on overt contrast than do the projects in the previous three typologies, and are often able to isolate and heighten some fundamental essence of the original structure while updating it to meet modern needs. Surprisingly, it is often the spaces that seem most 'authentic' that have been most altered. In these cases, it is a testament to the designers' ability to look beyond the immediacy of the physical artifact to find the structure's potential. This is especially important in projects where the programmatic function is vastly different before and after redevelopment.



Figure 4.15. Camera Press Building
London, England
Panter Hudspith Architects, 1992-1993
Originally: 1960s warehouse block
Currently: Photographic agency offices
(Source: www.corbisimages.com)



Figure 4.16. Great Court at the British Museum
London, England
Foster and Partners, 1994-2000
Originally: Unused courtyard
Currently: Central area with information and commercial functions
(Source: www.corbisimages.com)



Figure 4.17. Tate Gallery of Modern Art
London, England
Herzog + de Meuron, 1994-2000
Originally: Power station
Currently: Art gallery
(Source: www.corbisimages.com)



Figure 4.18. The Linqotto
Torino, Italy
Renzo Piano Building Workshop
1988-1997
(Source: www.corbisimages.com)

4.1.5.7. Integrated Structure

In this typology, different than the integrated infill types, the original building's skin and the existing form of the building changes where the structure kept unaltered and employed to carry a different formal articulation. Industrial

buildings, predominately based on steel frame and panel structures rather than masonry, are as versatile as the independent industrial structures, in this respect. The genuine structural frame is used as a potential design tool in achieving a spatial flexibility and therefore is usually utilized to attain various different scales of projects. In most cases it is integrated both to the build structure as well as to its surroundings and used as a means to create a spatial continuity between the open and enclosed spaces.



Figure 4.19: 2100 Greenwood Lofts
Chicago, USA
Evanston Co. 2008-2009
Originally: Rolled steel cutting factory
Currently: Loft Community
(<http://evanston-condos.com>)



Figure 4.20: McArthur Glen Designer
Outlet Centre, Swindon, England
Carillion, 1997
Originally: Railway Station, Great Western
Railway Works Currently: Shopping Centre
(<http://en.wikipedia.org>)

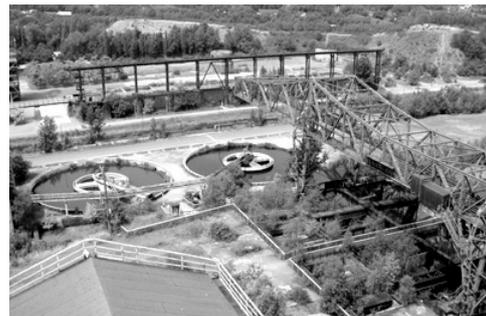


Figure 4.21. Duisburg Nord Landscape Park
Emscher, Germany
Latz +Partner, 1991-2000
Originally: Steelworks Industrial Complex
Currently: Landscape and Amusement Park
Size: 200 hectares
(Source: <http://www.arch.hku.hk>)

4.1.5.8. Structural Infill

It is a common reuse strategy for the old buildings having problems in their structural durability due to aging and other natural corruptions. Preserving the existing form and spatial configuration of the building, the obsolete structure is replaced with an entire new structural scheme embedded to the existing fabric. In most cases the new structure is inevitably made visible on the outside and inside of the building, drawing a notable attraction to the structural elements in the overall of the building. Therefore the new structural frame and the elements are usually used expressively and tend to go beyond a concordance achieved by invisibility or transparency.



Figure 4.22. Doblin House
Ravenswood, Chicago
Joe Valerio 2000
Originally: T-shirt Factory
(Source: <http://www.archidose.org>)



Figure 4.23: 55 Baker Street, London, UK
Make Architects, 2008
Originally: Office block
Currently: Marks and Spencer's HQ
Size: 46,500m²
(Source: <http://www.bcoawards.org.uk>)



Figure 4.24. Smithfield Buildings, Manchester,UK
Architects Stephenson Bell, 2007
Originally: Warehouse
Currently: Retail and residential units
(Source: <http://www.flickr.com>)

4.1.5.9. Lateral Extensions

In this type of reuse one or several old buildings get united with a new section in order to create a single entity. It can be achieved by adding new floors to the existing structure or just simply making a lateral extension to the old structure. The scheme usually provides a valuable environmental statement by tapping into the embedded value of old buildings, rather than taking the easy path of stripping them away. The interaction between the newly build and the old parts can engender subspaces, while retaining many original features of the old structure. It is a way to accommodate larger spaces within one volume that has different and variable spatial qualities.



Figure 4.25. Vanilla Factory, Liverpool, UK
 Shed K.M. Architects, Urban Splash Development, 2005
 Originally: Factory Building
 Currently: Office Space, Size: min 880 sq.ft. per office
 (Source: <http://www.flickr.com>)



Figure 4.26. Fort Dunlop, Birmingham, UK
 Hazel Rounding of shedkm and Martha Schwartz INC,
 designed for Urban Splash, 2004-2006
 Originally: Head Office of Dunlop Rubber and tyre factory
 Currently: Office / Retail Space and adjoining Travelodge Hotel
 Size: 4.02 hectares
 (Source: <http://www.bcoawards.org.uk>, <http://www.flickr.com>)

4.2. Objectives and Essence of Intervention

The interventions should have minimal impact on the heritage significance of the PIOSS and its setting. The most successful projects are those that best respect and retain the industrial heritage significance and add a *contemporary layer* that provides value for the future

The purpose of preservation/conservation/revitalization of PIOSS is about retaining and continuing the importance of the industrial heritage. The first step in planning for the future of the PIOSS is to understand the context. From analysis of this research a statement of significance is prepared. The understanding of the significance of PIOSS provides the basis for developing a policy that addresses:

- the care of the fabric
- the use or compatible uses
- the setting and the relationships
- policies about interpretation, intervention and management.

(Walker, 2000)

The basic *principles* for the intervention towards PIOSS can be summarized as follows. The first major principle is to understand the building and its context and to assess its significance. Quoting from the Burra Charter: '*Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects* (Walker, 2000).

Intervention is based on a respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible'. Many buildings are specific to their function and the use is a major component of their value and meaning to the community. In this respect

industrial structures should not be approached as objects/envelopes for various possible uses. If the change of use is inevitable, it is crucial to retain and interpret the structure/site so that its past function is readable. Contents, fixtures and objects are likely to be evidence of the past use and therefore part of the story. In this respect the new additions should be readily recognizable as new work. Finally, the scale and form of the building may be a major component of its significance (Walker, 2000).

4.3. Thematic Concerns of Intervention

Approaches to the Preservation of Historic Buildings: The need to accommodate processes of *development and change* in order to maintain the viability of PIOSS has given way to greater appreciation of the need to adopt *area based strategic approaches* as a basis for the effective management of PIOSS. It is of greater importance to identify and consolidate the distinctive characteristics of industrial buildings/sites as they contribute to the *variety* of the built environment. Approaches to PIOSS must be integrated, comprehensive and most importantly should be accompanied by sustainable end uses (Mageean, 1999).

Respect for Established Urban Morphology: The *patterns of buildings and spaces*, their relationship to *urban pattern* and the development of this relationship through time are acknowledged as important concerns. This concern moves far beyond the preservation priority and also requires consideration of which elements of the unique identity of a place should be protected, enhanced or extended as part of the necessary *processes of adaption and change*.

With regard to space, the buildings with huge volume and open space in old industrial areas are totally different from the compact medieval streets, the regular baroque blocks, and the loose modern residences. Compared with the

surroundings, the urban texture of the industrial area is an obviously heterogeneous part of the city (Hillinger, Olaru, Turnock, 2001).

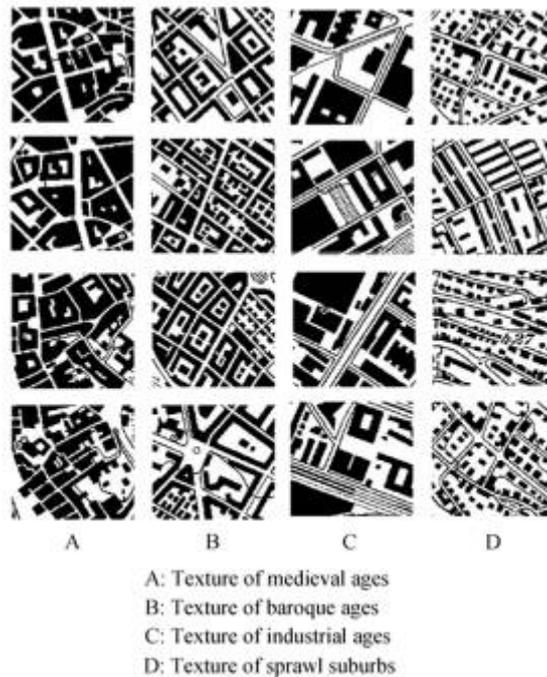


Figure 4.27. Urban Morphological Texture of Different Ages
(Source: Hillinger, Olaru, Turnock, 2001)

There are significant examples which revealed some evidence of a growing respect for *evolving morphology*. Moreover the adoption of *building forms* in this manner can assist in the revitalization of under-used areas. Though falling far short of a thorough exploration of morphological development, this recognition is a step in the right direction. However, the opportunity to improve the functioning and efficiency of problem areas through radical schemes which could be informed by an appreciation of earlier morphological patterns is not always taken. Given the concerns the capacity to accommodate *morphologically more consistent design solutions* should perhaps be considered more carefully (Mageean, 1999).

Architectural Design of New Buildings: The design of new buildings should not directly imitate earlier styles, but should be designed with respect for their context, as part of a larger whole with a well established character and appearance of its own. English Heritage usefully supplements this generalized requirement by suggesting that as long as we ensure that the overall mass or volume of the building, its scale, its relationship with its context and use of materials are all appropriate, and that it fits in with the grain of a historic area, it does not matter whether the architectural style is contemporary or historicist (Mageean, 1999).

The Treatment of the Space between Buildings: The treatment of the open/public spaces should be with respect to the industrial character of the site. The traces of the industrial fabric, its spatial configuration, old production modes within a complex, should also be considered as the essential objective of the treatment of the space between buildings. As far as strategic landscaping is concerned, the open spaces should be preserved so as to be integrated with the built environment

4.4. Factors Affecting the Intervention

The problems associated with reuse of PIOSS are complex and diverse, and a practical research agenda must reflect them. In order to provide the appropriate framework within which specific issues can be addressed, the research must focus on a number of broad issues (Collaton, Bartsch, 1996). These issues include below stated topics:

- contextual characteristics
- spatial characteristics
- functional characteristics
- morphological characteristics
- visual characteristics

- constructional characteristics

Intervention within the built environment may occur at many scales from individual building elements up to entire sites, townscapes or landscapes. The scales of intervention start on the level of regional scale and ends with the architectural details level.

1. Large Scale Industrial Regions/Quarters
2. Industrial Landscapes
3. Industrial Sites Relying on Certain Resources or Production and Transportation Conditions
4. Industrial Structures/Buildings and Their Peripheries
5. Industrial Building/Artifacts

Stages of Intervention can be defined as Project Initiation, Concept Development, Project Preparation, Implementation, Occupation and Management.

In addition, site specific factors such as ; location, scale/size of the project, process certainty, ownership issues, public interest and involvement, local demographics and land use, funding should also be considered throughout the intervention process (Scadden, 2001) .

Financial factors should also be measured. These factors can be categorized as ;

- Local, National, International Economic Dynamics
- Project scale
- Location
- Land Ownership, Claims and interests
- Land Prices

Even though **universal recipes** for revitalizing PIOSS do **not exist**, practitioners in other cities can certainly be motivated by other best practice examples and

benefit from **success factors, impediments and checklists** that became apparent in other cities (Tomerius, 2000; Tötzer, Gigler, 2005).

Examining the different sites showed that several parallels and important lessons can be drawn from the redevelopment approaches, even though each city has a different background, is embedded in different regulatory, local, and regional frameworks and faces specific challenges (Tötzer, Gigler, 2005).

The cases researched demonstrate that certain **key factors** and approaches need to be in place that allows cities to redevelop old industrial sites in a sustainable manner.

Flexible diverse and adaptive approaches were shown to yield resilient, diverse and mixed use urban neighborhoods. Moreover, visions and visionaries proved to be essential in guiding long-term revitalization processes. In any successful regeneration project, stakeholders need to collaborate, co-operate and openly share information and participate in decision-making processes. Creating effective and long-lasting change is very much a long-term and highly complex process that requires many experts from a variety of organizations to work together collaboratively and in close partnership (Tötzer, Gigler, 2005).

In complex systems such as cities local circumstances, stakeholders' views and the types of organizations involved play a major role. The cases illustrate that open communication; trust and cooperation between public and private stakeholders accelerate the revitalization process and lead to a balanced and mutually accepted outcome. Following a holistic concept and a vision, but staying flexible throughout the process helps create resilient structures, which strengthen the **urban economic social fabric** and essentially contribute to a sustainable development of the entire city (Tötzer, Gigler, 2005).

Successful approaches and lessons learned can be summarized as follows:

- Involving all relevant stakeholders in the revitalization process
- Developing a vision that guides the process
- Co-operating, forming public/private partnerships and developing trust
- Investing in education and training of locals
- Engaging in good marketing of the site to attract well-known companies
- Supporting clustering efforts between e.g. educational institutions and firms
- Clearly spelling out funding mechanisms prior to revitalization
- Applying integrative planning approaches
- Engaging in regional planning
- Management: private developers with public or public/private boards manage revitalization; fiscal responsibility lies with developer
- Monitoring to allow feedback between planning and implementation
- Remaining flexible and adapting to e.g. market needs
- Creating diverse, mixed use sites
- Improving sustainability on site through e.g. environmental clean-up

(Tötzer, Gigler, 2005; Knoflacher, 2004)

4.5. Funding Models of Intervention

Certain funding models which can be suitable for one case/city/country may not be suitable or applicable for another one. On the other hand, one can benefit from these funding mechanisms by considering success factors and impediments and applying them according to the local circumstances. Hence it is considered to be beneficial to bring together the spectrum of funding models

A range of very different approaches can be used to fund PIOSS. However, whichever model or approach is taken, it is important to set up dedicated funding and management arrangements at the beginning of the intervention process.

Successful funding is often emphasized by a strategic approach to funding and management that incorporates a portfolio of different funding sources, mechanisms and partnerships. The evidence clearly shows that the success of funding models is inextricably linked to the physical, political and social context, within which the PIOBS is located, and the assets and resources available. These factors must be taken into account in developing the funding strategy (The Commission for Architecture and the Built Environment, 2006).

Market-driven models are more applicable for more advantageous sites which allow these areas greater flexibility to develop alternative approaches. However, they could be applied in low demand contexts if supported with public investment. It is not just the amount of funding that matters, but also how that funding is used. The skills and capacity of the people running the projects, both at a management and an operational level, have a clear impact on the sustainability of PIOBS (The Commission for Architecture and the Built Environment, 2006).

Although each of the funding models could provide finance for PIOBS, the level of additional or 'new' funding varies. In other words, the degree to which funding from each model supplements or replaces traditional local authority funding differs. Some models can be more readily applied to access finance in the short term. Other models require more long-term developmental work and radical thinking but could play an important role in funding PIOBS in the future (The Commission for Architecture and the Built Environment, 2006).

Solutions should also consider the range of barriers that could hinder the development of innovative funding models. These include:

- lack of awareness of the value of PIOBS amongst key decision-makers and funders
- restrictions on the ability of local authorities to set and control local taxes and influence local business rates

- lack of financial management skills and capacity in many local authorities and the voluntary and community sector
- the vulnerability of funding for PIOBS to cuts and competition from other services/sites within local authorities
- low levels of corporate social responsibility and philanthropy in the private sector (The Commission for Architecture and the Built Environment, 2006).

In many cities, PIOSS managed by local authorities is usually funded from the authority's general revenue budget, which is financed from local taxation and/or government transfers. Sustaining of the PIOSS is one of the many services funded from this budget. The decision about how the general revenue budget is distributed among competing services/sites is made by the local governments. Funding can be accessed from a range of government departments and agencies for the delivery of the projects. In many countries charges on property, or tax credits, can be used to fund the management and conservation of PIOSS. Also revenue income that can be generated from new urban development sites can ensure for the sustaining of the PIOSS. In some countries, local businesses and residents can vote to allow the local authority to receive loan funding from bonds that can be repaid, including interest, over a period of up to 30 years, to fund PIOSS. Opportunities for generating revenue income, such as licensing and franchising, sponsorship, entry fees and fines, are ways in which funding from the private sector can be sourced. Endowments provide long-term funding for PIOSS from the interest gained on investments in assets such as property or the stock market. Not-for-profit organizations and voluntary and community groups can contribute time and labor, raise funds and encourage community development and local ownership of PIOSS (The Commission for Architecture and the Built Environment, 2006).

CHAPTER 5

CASE STUDY

AN INTEGRATED APPROACH FOR THE INDUSTRIAL BEINGS ALONG THE GOLDEN HORN

5.1 Introduction

This chapter starts with the discussion of the significance and dimension of the issue in Turkey. The scope of the issue in Turkey is revealed by identifying the present policy framework in accordance with the legislative and instrumental measures. This is complemented by an inventory for the significant industrial heritage sites in Turkey. The particularity of the problems and threats are identified to assess the necessity of an integrated approach. On this basis, the transformation of the PIOSS in the setting of the Golden Horn will be expressed. This chapter intends to bring the conceptual basis of the thesis with the contextual characteristics of the Golden Horn. In this manner the basic components of an integrated program considering the sites in the urban context and as problem areas of urban design are specified.

5.2. The Scope, Significance and Problems of Post-Industrial Obsolete Structures/Sites (PIOSS) in Turkey

In Turkey, to enhance and sustain the industrial heritage resources is crucial and problematic when we consider the complex impacts of *deindustrialization* and rapid changing nature of *urban dynamics*. The shift from *production to consumption; decentralization of industry*; strict zoning regulations; *segregation* of industry from social, economic, cultural life of the urban fabric; highly speculative land market, mediation of local politics through *building rights* and maximum *exploitation* of urban land brings *multi-dimensional* problems and threats for the future of PIOSS in Turkey.(Keskinok,2007)

Although heritage conservation is not a recent phenomenon, for a long time it has been *object-oriented* and its scope has traditionally been limited to single buildings. *Area based conservation* and its integration to *public policy* is a rather recent approach. In the case of industrial heritage, the situation is much more challenging. There is a lack of consciousness towards the heritage significance and multi-layer values of it in the urban context. In most of the cases, the interventions towards PIOSS do not consider the diverse potentials, opportunities which can improve the social, economic, cultural and spatial conditions of the built environment. Moreover the *policies, strategies, norms, tools and guidelines* for the revitalization of PIOSS as a special field are not adequate. It is obvious and inevitable that relevant segments of planning system and methods in use need to be adjusted and new policy frameworks need to be formulated.

Throughout the world industrial facilities face with many common problems: inefficient operations of the historical enterprises; their being technologically inadequate; and their pollutant nature are some of the factors leading to the obsolescence of the historical industrial buildings (Föhl, 1995). (Koksal, Ahunbay, 2006)

In Turkey, the processes of urbanization, industrialization and deindustrialization show a different character than the western/european countries and cities. Similarly, the industrial structures are confronted with a bundle of *particular* problems and threats preventing their *existence* and *survival*. There is a *conscious destruction* of the industrial structures or an *indirect authorization* of the *demolition processes* which not only result with the *vanishing* of the *industrial heritage* sites but also result with many *multi-dimensional problems* for the *social, economic and cultural life of the cities*. It is unacceptable that these sites are destroyed by local and central authorities who, initially, are responsible for the protection and enhancement of these structures/sites:

“In the industrial development plans, the workers houses designed within industrial sites/complexes were interpreted as the places constructing “a new society”. However, the privatization waves which dominated the last fifteen years, aimed at rendering these “constructive” sites valueless. Often in collective and organized ways, and rarely in unconscious fashions, these interventions meant to disrupt the collective and historical identity of a society.” (Cengizkan,2009)

Besides the economical conditions; the inadequacies in legal-policy framework, problems of current conservation framework, lack of scientific studies and the attitude towards industrial heritage are other main reasons behind the inefficiency of sustaining industrial heritage. In addition the common constraints/threats/problems of PIOSS which have been discussed in Chapter x are mostly valid in the urban (re)development process in Turkey.

A very recent specific example of the significance of the problem in Turkey was the demolishing of the *Ankara Gas Factory* in the Capital City of the Turkish Republic, Ankara. In July 2006, Ankara Gas Factory, which was one of the most remarkable examples of Turkey’s industrial heritage, was torn down by the local administration following the deregistration decree of the Regional Board of Conservation of Cultural and Natural Properties. This invaluable edifice, which was sheltering the earliest installations of Ankara’s industrial production,

became the victim of irresponsible authorities and capitalist interests. (Özgönül,2007), (Balamir A.,2006).

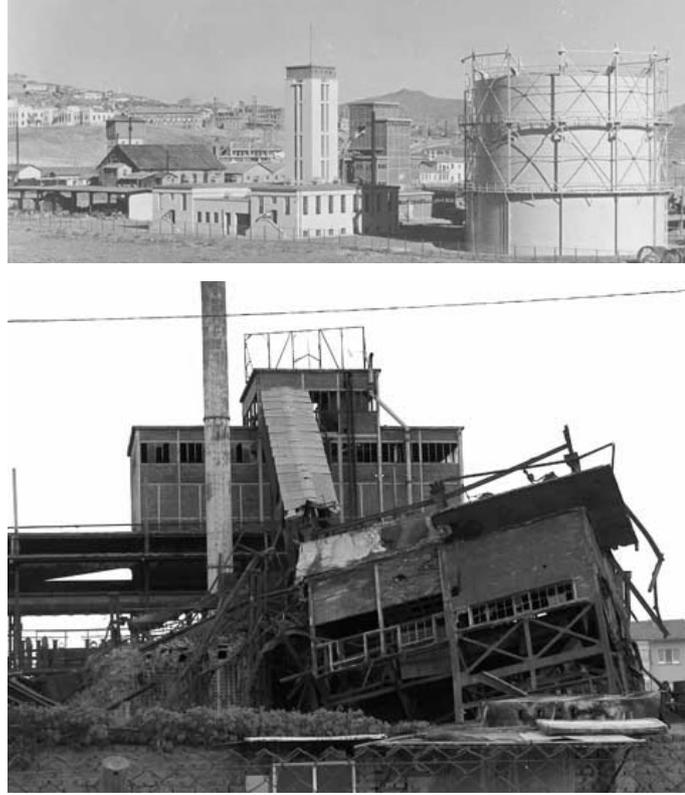


Figure: 5.1. Ankara Gas Factory: Demolished in 2006.

(Source: www.mimarlarodasi.org.tr)

In Turkey there are dozens of examples of Post-Industrial Obsolete Structures/Sites (PIOSS) which had a similar fate with Ankara Gas Factory. There are also a great number of PIOSS which are facing with ranging type and level of *obsolescence*. It is possible to come across with a *derelict / defunct / decayed / damaged / abandoned / deteriorated* industrial structure, facility or complex almost in any settlement of Turkey. To expose the *scope, dimension and potential* of the problematic in Turkey, it is not enough only to consider the most explicit industrial re-use examples. Consideration of the obsolete industrial

structures/sites which are under the threat of vanishing is also very crucial. In this respect this study tried to bring together a list of significant examples of the 19th century Ottoman and Early Republican Era Industrial Structures/Sites. Unfortunately there is no *inventory*¹ for the industrial sites with heritage significance in Turkey. In spite of a lack of a record, by using written/published and internet sources this list is prepared. (See APPENDIX 1 for the significant examples of 19th century Ottoman and Early Republican Period industrial structures and sites of Turkey)

5.3 Classification of the Problems of PIOSS in Turkey

In Turkey the basic *problems/threats* that industrial sites/structures face with can be categorized under three headings:

1. The policies which resulted in obsolescence (physical, structural, functional, locational, environmental, visual and economic) or vanishing of the industrial sites.
2. The interventions, which harm the character of the industrial sites, structures and might severely harm the urban social economic fabric/harmony of the city.
3. Punctual implementations, which do not count historical, cultural, spatial and morphological context of the built environment.

5.3.1. Problems Originating From the Attitude towards Industrial Heritage

- Reuse of PIOSS are usually interpreted not as an *objective* but as a *tool* for obtaining *urban economic rent*. A common example of this attitude

¹ **Çekül Foundation** has started an inventory study for the industrial heritage of Turkey in April 2009. Similarly the **Chambers of Architects** of Turkey also have similar efforts to document the industrial heritage in the context of modern architectural heritage. Unfortunately no information can be obtained from these associations as both of the efforts are in their initial stage. Moreover there is no record for the industrial structures as a specific category of building typology at the **Regional Board of Conservation of Cultural and Natural Properties**

is the division of the industrial sites into small parcels so as to be assigned to multiple owners which threatens the integrity of the industrial complex.

- Approaching industrial heritage structures/sites as an *envelope or object* result in disappearance of important elements of industrial heritage
- When compared to other typologies of historical buildings, the multiple-values of the industrial heritage structures/sites are underestimated or even totally ignored.



Figure 5.2: Malatya Sümerbank Textile Factory (1939)
Demolished in 2008 by the new owner after privatization (2004) to built a new shopping mall at the site. (Source: www.fendogluinsaat.com/, <http://www.malatya.bel.tr/>)

5.3.2. Problems Originating From Lack of a Comprehensive Strategic Approach

- PIOSS are not taken into account within regional and urban strategic approaches. Comprehensive and integrated approaches/strategies/principles and tools are not determined for PIOSS.

- Political fluctuations and the validity of the subjective decrees of the authorized bodies prevent the preparation of long-term plans for the re-evaluation of the industrial structures
- Urban policies to integrate PIOSS with the built environment and the social, economic cultural fabric of the cities are not formulated.



Figure 5.3. Bursa Merinos Textile Factory (1938)
Factory is not functioning since 2004 and partially damaged from a fire in 2006
Municipality of Bursa who has the ownership of the site is carrying out studies for the adaptive
re-use of this registered heritage as a cultural centre
(Source: www.bursa.bel.tr)

5.3.3. Problems Originating from the Conservation Framework

Turkey is confronted with significant issues preventing the development of effective conservation policies. First, an integrated conservation approach is not yet fully adopted as the essential principle of the industrial heritage conservation. Secondly, the current framework does not enable the development of a societal common sense for the heritage significance of industrial structures and sites. Third of all, the (re)integration of PIOSS with the urban social economic context

and the proposition of appropriate interventions so as to preserve the industrial heritage for the future generations cannot be effectively realized.

“Industrial structures”, implicating the assets that could be valued as “cultural heritage” have not been profoundly defined, until recently, in terms of their conceptual and descriptonal dimensions. Similarly, the qualifications pertaining to the conservation requirement and the chronological criterion of the industrial heritage do not occupy a considerable ground in our conservation legislation. (Madran, and Kılınç (ed), 2008, Page 9)

The undervaluation of the industrial structures when compared to other architectural and cultural heritage categories; high-rent values; high-cost expenditures required for the conservation and reuse implementations; the assignment of improper functions; and the construction of additional structures without respecting the particular characteristics of the old structure and its contextual setting fasten the deterioration process.

In this respect the major problems originated from the conservation framework are as follows:

1. In Turkey, in spite of a number of individual studies, a comprehensive study for the documentation of the industrial heritage was not realized.
2. In Turkey most of the PIOSS with heritage significance are not under legal protection
3. The current framework which enables the uncontrolled interventions and careless restoration works following the registration as *second-degree* historical property, lead to the disappearing of the original characteristics of the industrial buildings



Figure 5.4. Zonguldak Lavuar (Coal Wash) Facility (1950)
Registered site mostly demolished by the municipality in 2006
Currently obsolete. Discussions for an adaptive re-use project are going on.
(Source: <http://www.fotokritik.com/919092>)

5.3.4. Problems Originating from the Intervention Processes

- There are dozens of examples of comprehensive “urban regeneration / transformation” schemes which have **swept away** industrial heritage assets in the name of efficiency, cost, viability, environmental contamination and meeting occupier requirements
- A regular system of tools of intervention does not exist.
- The industrial structures which have become obsolete are left over due to the lack of a regular maintenance and repair system. The maintenance and repair of the industrial facilities which are under legal preservation are not regularly done as well.
- The destruction of an industrial structure for various reasons and the construction of a new building copying the features of the old one contributes to the disappearance of the industrial heritage
- The installations of the factories are either transferred or sold as worn-out equipments.

- The inappropriate new functions may result in the destruction of the original functions of the structures.
- The need for qualified experts is neglected and the implementations are often realized by unskilled personnel.
- The assignment of new functions is done very quickly and in an uncontrolled medium
- The irreversible implementations which do not respect the technical and architectural qualities of the industrial structures lead to the disappearance of the historical traces. Inappropriate extensions, improper material and detail propositions are often the cases which distort the original characteristics of the industrial heritage
- A successful management plan could not be prepared for the intervention processes



Figure 5.5. Alpullu Sugar Factory (1926)
Still functioning.

Included in Privatization programme.
Under threat of being demolished after completion of privatization
(Source: www.turkseker.gov.tr)

5.3.5. Problems Originating from Monetary/Financial Issues

- Financial models, mechanisms, tools in order to cope with the constraints and problems of intervention processes are not adequate.

- Lack of financial management skills and capacity in many local authorities and the voluntary and community sector
- The vulnerability of funding for PIOSS to cuts and competition from other services/sites within the built environment local authorities
- There is not sufficient amount of financial resource to meet the high costs requirements for the intervention processes
- Due to inadequate financial resources, low-quality implementations and uncalculated implementations are often the cases

5.4. Setting of the Golden Horn

5.4.1. Geographical Location:

The Golden Horn (*Haliç*), which is a naturally shaped inlet, is one of the most important components adding value to the character of Istanbul. **7.5 km** in length in the north-south direction, it is fed by Kağıthane and Alibey rivers/brooks. The width of the Golden Horn varies from **200 to 700** meters while its depth from 1 to 60 meters (Yüçetürk, 2001: 5) (Bezmez,2009).

As a geographical threshold, the Golden Horn separates the European part of Istanbul into two: The old center, or, as currently referred, the *historical peninsula*, and Beyoğlu (*Pera*) and the greater segment of the European continent. Historically, this division was too sharp that the *Beyoğlu* section was named as *Pera*, meaning the *opposite shore*. (Yerliyurt, Hamamcioğlu,2005).

The Golden Horn has never lost its significance both in urban and global scale. Its geographical position, its physical characteristics making it a naturally safe port and its being a significant *transport channel* made the Golden Horn one of the most important ports of the world. In this sense, it always constituted a central role in the urban economy and became an important advantage for Istanbul to compete with other European cities (Görgülü,Erdönmez,Ökem,2008).

Finally, owing to its valley-like structure, the Golden Horn contributes much to the visual character of the city. Perception of the city's *silhouette* from the Golden Horn and the view of the Golden Horn from the shores enhance the *image of the city*.

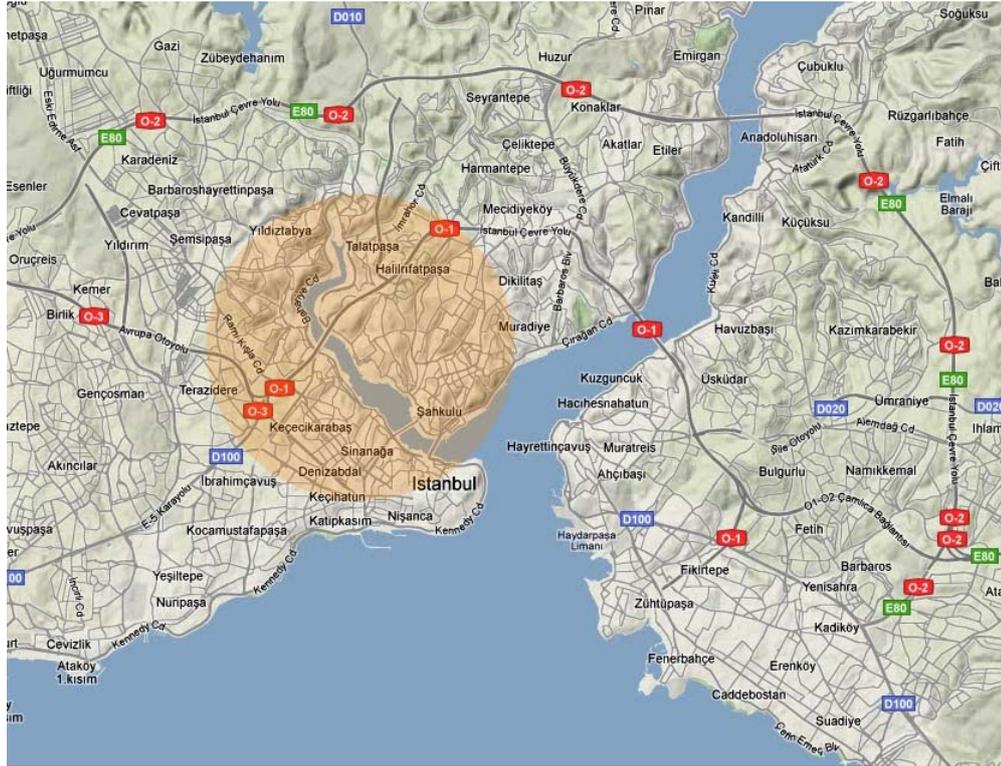


Figure 5.6: Geographical Location of Golden Horn in Istanbul

(Source: <http://maps.google.com>)

5.4.2. Historical Significance:

The *juxtaposition* of Istanbul's *3000* year history with the dynamics of the 21st century metropolitan city has resulted in a *multiple-layered* structure with a multicultural composition. The continuities as well as the harsh ruptures between successive civilizations² contributed to the *authenticity* of the city. Being the capital of two remarkable civilization of the world³, the Golden Horn had a fundamental role in the social-economic life of the city. Unceased contacts with administrative and commercial nexus and coastal ports preserved the significant

² Late Roman/Pagan; Byzance/Christian; Ottoman/Muslim and Modern Turkey

³ Byzance, Ottoman Empire

role of the Golden Horn. As a result, the dense *portal activities* at the both side of the Golden Horn docks/shipyards greatly shaped the *urban tissue* of both sides. (Görgülü,Erdönmez,Ökem,2008)

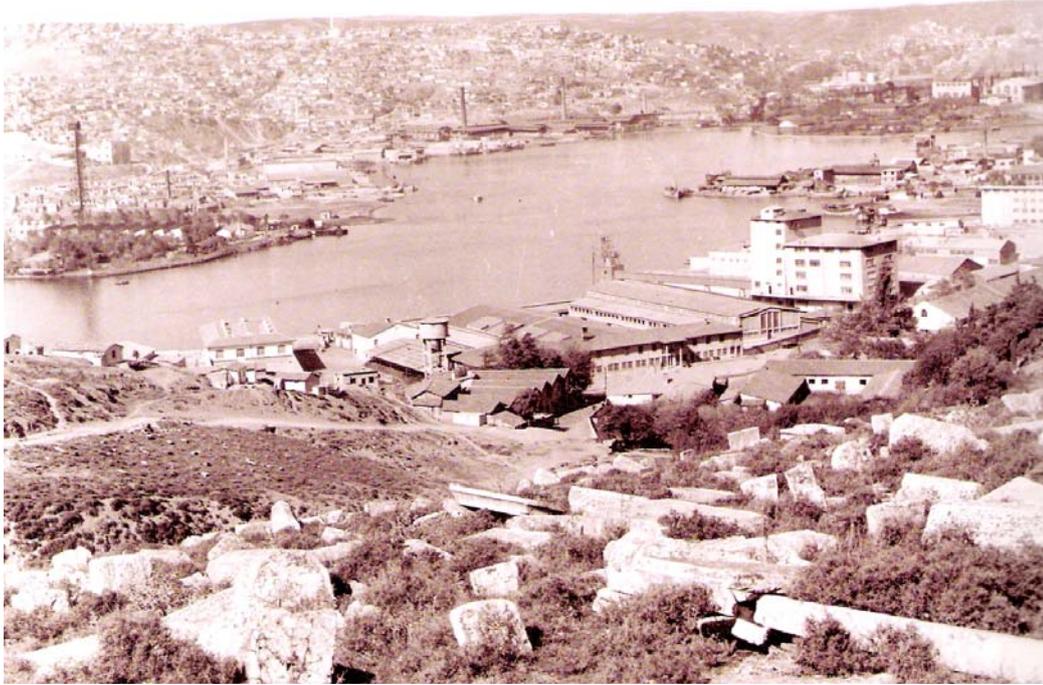


Figure 5.7. The Golden Horn in 1950s,
(Source: German Archaeology Institute Photo Archive, Aksoy, 2007)

5.4.3. Industrialization and Deindustrialization Processes along the Golden Horn:

The Golden Horn had an essential place in the *modernization* of Istanbul. In this sense, the first *industrial developments* emerging in the *19th century* were located along the Golden Horn. Due to the increase in the *harbor activities* and the *waterfront transportation*, the Golden Horn soon became the most advantageous *locus* in Istanbul for the industrial development. (Yerliyurt ,

Hamamcioğlu,2005). Hence, the earlier industrial structures⁴ were all constructed on either sides of The Golden Horn. (Yerliyurt , Hamamcioğlu,2005) (Görgülü,Erdönmez,Ökem,2008). In this respect, the construction of *Galata Bridge* and the use of *steam boats* for public transportation increased the *accessibility* of these areas (Yerliyurt, Hamamcioğlu,2005)

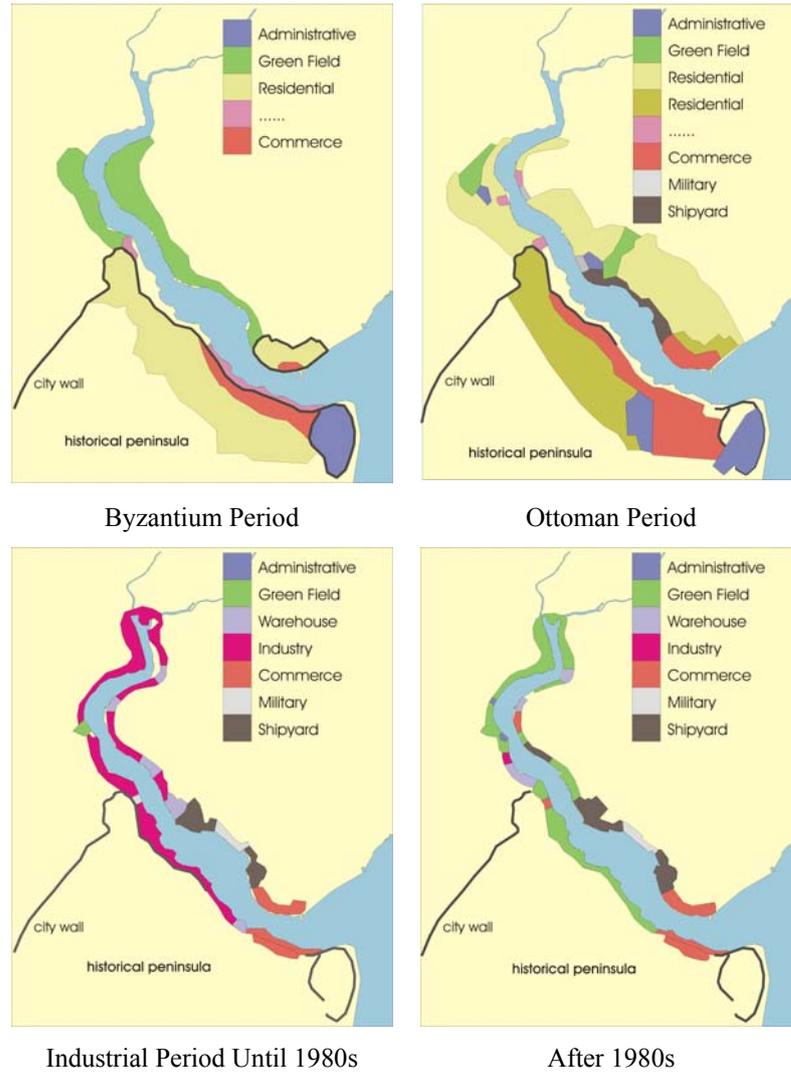


Figure 5.8. Historical Development of Industry Along Golden Horn
(Source: Adapted From Yüçetürk ,2001)

⁴ Feshane Textile Factory, Silahtarağa Electric Plant, Spinning Mills, Lengerhane, Shipyards and a Slaughterhouse

Prost plan of 1933, which defines the banks of the Golden Horn as the industrial development zone, encouraged the multiplication of industrial sites along the Golden Horn during the *republican era* as well. (Yerliyurt, Hamamcioğlu, 2005). Consequently, with the construction of about **700** factories and more than **2,000** related enterprises the Golden Horn became the *vital industrial axis* of Istanbul. (Görgülü,Erdönmez,Ökem,2008) (Bezmez,2009). However, **rapid urbanization** and industrialization that took place after the **1950s** turned the Golden Horn into a problematical zone of the city. Both environmental and visual pollution,, the insanitary condition of the industrial structures and the slum areas deteriorated the historical silhouette of the Golden Horn.

5.4.4. Urban “Renewal” Interventions:

The urban operations in **1980s** marked another period of transformation for the Golden Horn. (Yerliyurt,Hamamcioğlu,2005). As a consequence of *destructive* operations, the industrial structures/sites alongside the coast of the Golden Horn were *demolished* as to be reorganized as “*green areas*”. (Görgülü,Erdönmez,Ökem,2008). Within a very short time, more than **600** small manufacturing establishments, and approximately **30,000** buildings were demolished in and around the Golden Horn. (Keyder and Öncü, 1994: 408; Erden, 2003: 147; Yenen and Yücetürk, 2003: 601). (Bezmez,2009)

1980s operations, although contributed to the decentralization of the industrial developments in a certain way, *harshly distorted* the *character* of the urban environment. The lack of an urban vision and the mere objective of clearing the shores of the Golden Horn killed the *complex* and *rich* configurations of the urban space, devastated the spirit of the area and created rather a *dull* and *homogenous* urban space. Similarly, the lack of an all-inclusive documentation and inventory and a comprehensive policy to determine the various intervention modes for the industrial structures resulted in the loss of the invaluable stock in an *irreversible* way. This “*urban clearance*” has brought along with itself the

problem of obsolete urban space (Görgülü, Erdönmez, Ökem, 2008) More than **100 historic buildings** dating from the eighteenth and nineteenth centuries and reflecting the first Ottoman industrialization movements were torn down (Köksal and Kargin, 2003: 431) (Bezmez, 2009).

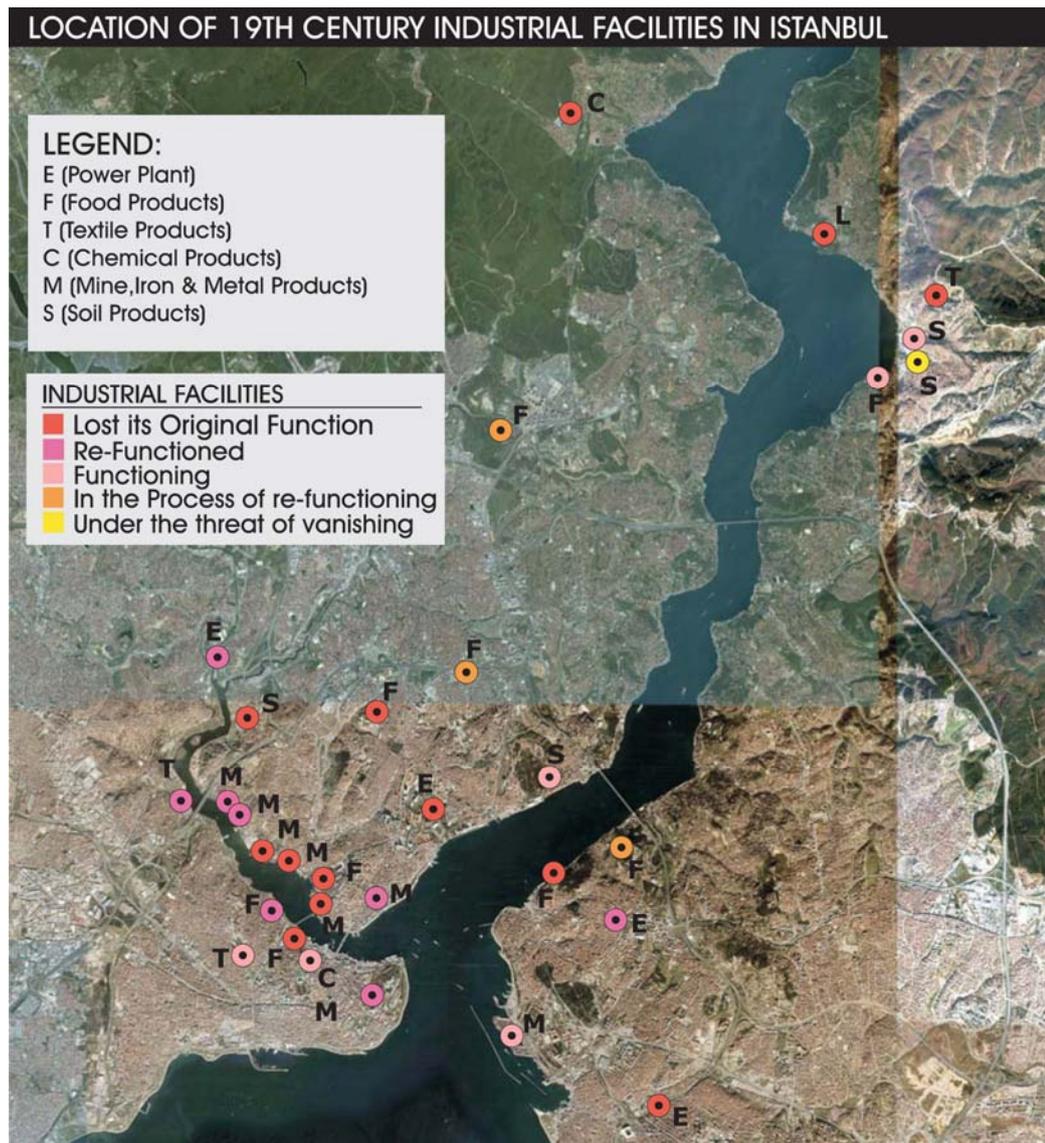


Figure 5.9: Location of 19th century Industrial Facilities in Istanbul.
*“In Istanbul due to locational advantages most of the industrial facilities were concentrated along **The Marmara Sea, The Bosphorus and The Golden Horn**. In the nineteenth century, there were **256 industrial buildings** in Istanbul, but today only **43 survive**”.*).
 (Source: Köksal and Ahunbay, 2006)

5.4.5 Deindustrialization Policies and Obsolescence of PIOSS along the Golden Horn

The lack of support from the state for raw material production; poor diversity and inadequate manufacturing and the lack of initiatives encouraging the use of domestic goods fastened the abandonment of the state-owned industrial complexes (Pamuk, 1997). A significant part of the enterprises situated along the Golden Horn, which were operating in full capacity until the 1980s, started to be closed after this date. In the 1990s, some of these structures became obsolete and they were demolished due to various reasons.

5.4.6. Current State of the Golden Horn

Today the Golden Horn is the scene of a number of half-finished and/or unrelated projects. There are dozens of projects that have already been initiated, or are in preparation, or that so far exist only on paper, which claim to transform the Golden Horn Area into a “*Valley of Culture and Arts*” (Yüçetürk 2001: IX).

As a result of the deindustrialization policies in the Golden Horn, the *re-use* of the industrial structures which were faced with rapid process of *obsolescence* came into the agenda in the late 20th century. This building stock, owing to their location, accessibility, spatial configuration and architectural value constituted a significant demand for the reuse of these structures and sites.

The most common new function adapted for the post-industrial obsolete structures was cultural facilities. In this respect, the obsolete antrepot building was transformed into Istanbul Modern (Contemporary Art Museum) Lengerhane and Hasköy Shipyard, which were constructed by the Ottoman Navy, was restored and opened as Rahmi Koç Industrial Museum. A cultural center was constructed on the site of Sütlüce Slaughterhouse. The Great Hall of the Feshane Complex was restored. Similarly The Tekel Tobacco Factory was established as

a university. Recently the first thermal power plant of İstanbul and Turkey, Silahtarğa Power Plant has been adopted to be re-used as a cultural and art centre called Santralistanbul.

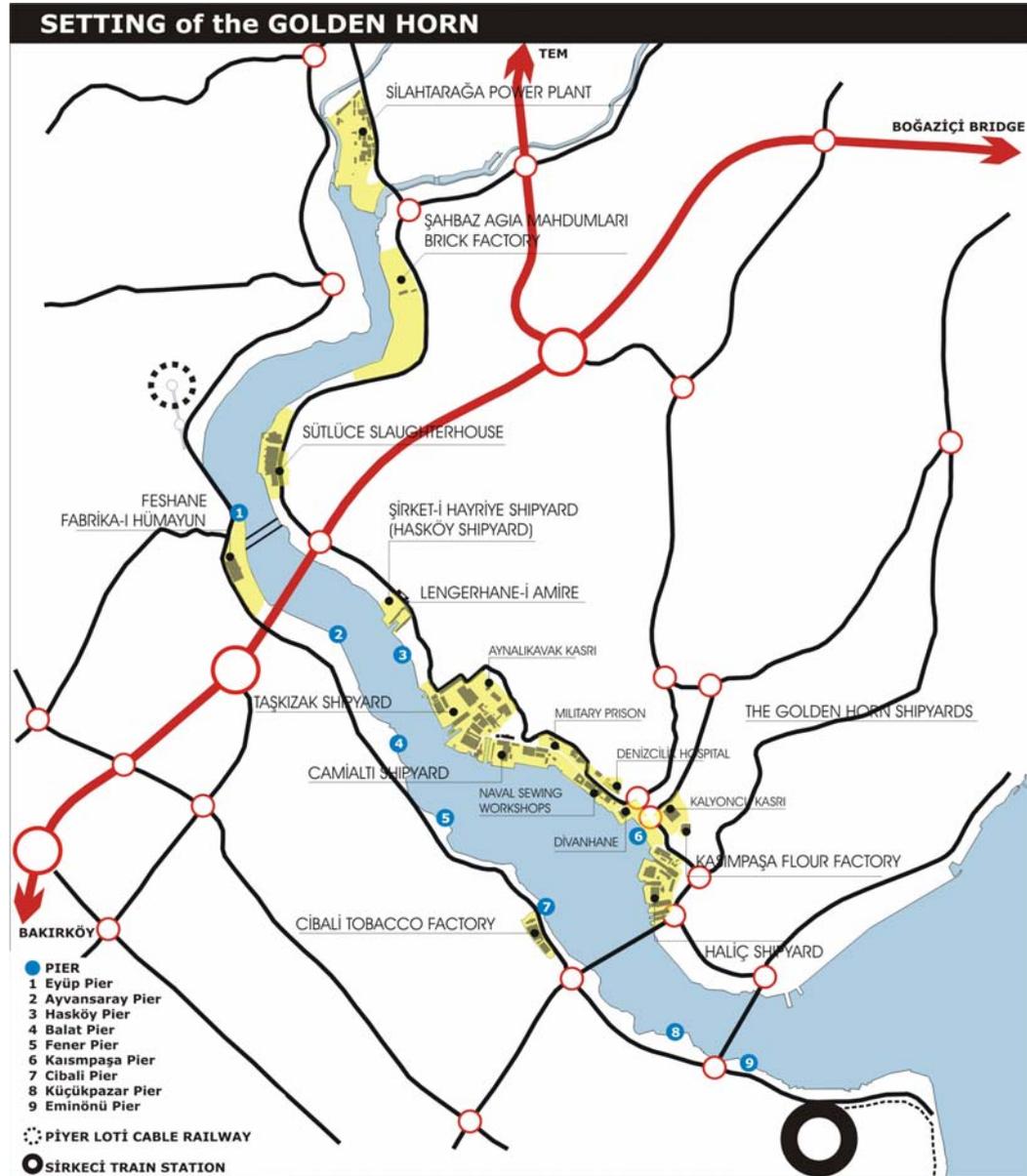


Figure 5.10. Setting of the Golden Horn, 2009

The processes of transformation in the Golden Horn brought many arguments and fair concerns for the future of the invaluable industrial heritage of the Golden Horn. In spite of many threats, pressures and problems, the Golden Horn

with its historical and cultural urban setting have the great potential to be the nucleus of revitalization in Istanbul.

5.5. INDUSTRIAL BEINGS ALONG THE GOLDEN HORN⁵

Currently there are 11 industrial/post-industrial sites along golden horn, which are all of important complexes in Ottoman and Republic history of industry and technology. Some of these sites are *demolished*, some of them are in the state of different types of obsolescence, and some of them are *being used for different purposes* after *various levels of intervention processes*.

From north to south these industrial/post industrial sites are:

1. Silahtarağa Power Plant

Santralistanbul Culture and Art Center

2. Şahbaz Ağiya Mahtunları Brick Factory (mostly demolished)

3. Sütlüce Slaughterhouse

Sütlüce Congress and Cultural Center

4. Feshane Fabrika-ı Hümayunu (Feshane-i Amire)

Feshane International Fair, Congress & Cultural Centre

5. Lengerhane-i Amire

Rahmi Koç Industry Museum

6. Hasköy Shipyard (Şirket-i Hayriye)

Rahmi Koç Industry Museum

7.8.9. Golden Horn Shipyards

7. Taşkızak Shipyard

8. Camialtı Shipyard

9. Haliç Shipyard

10. Kasımpaşa Flour Factory

11. Cibali Tobacco and Cigarette Factory

Kadir Has University

⁵ This section is gathered by the author from the following references; Köksal, 2005, Turkish Chamber of Architects archives, Rahmi Koç Museum website, Kadir Has University website, İstanbul Metropolitan Municipality archive, Ministry of Culture and Tourism Archives, İstanbul Bilgi University website and archive.

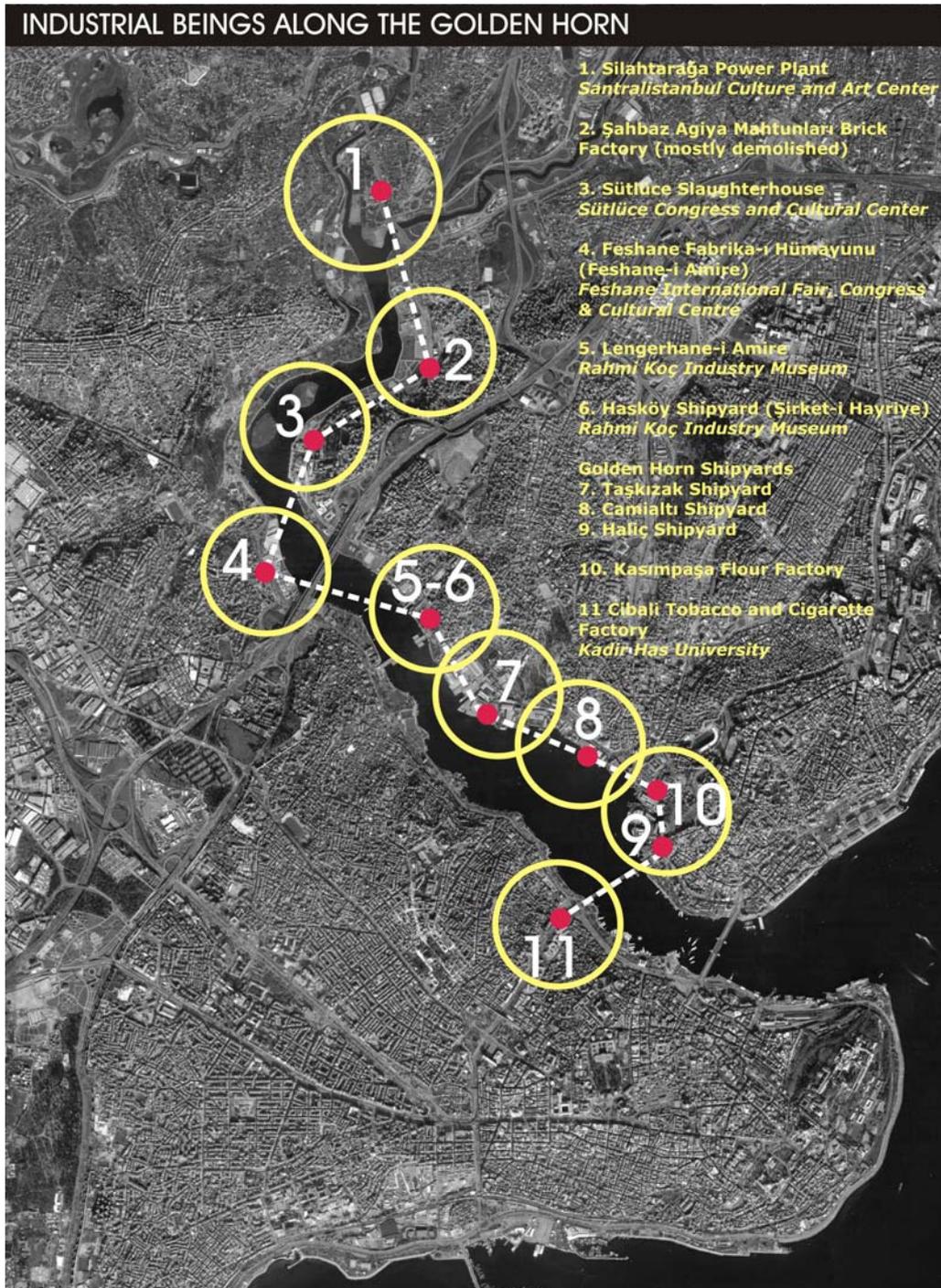


Figure 5.11. Location of Industrial Beings Along the Golden Horn

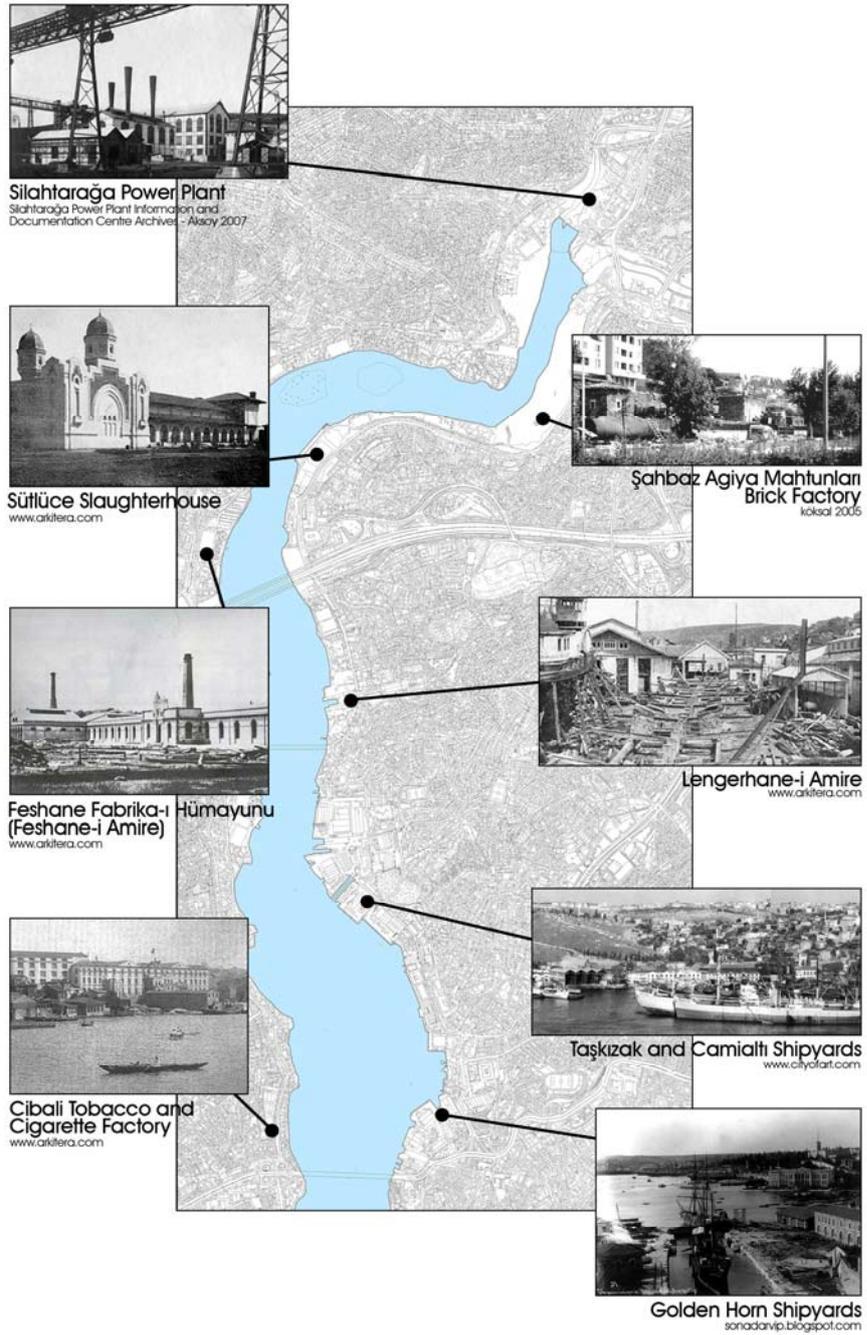


Figure 5.12. Old Photos of Industrial Beings Along the Golden Horn

5.5.1. Silahtarağa Power Plant / Santralistanbul Culture and Art Center



Location:	Silahtarağa/Kağıthane
Year of Establishment:	1913, by Hungarian Ganz Electric Incorporated Company
Ownership:	<i>Société Anonyme Turque d'Électricité</i> , Nafia Vekaleti, IETT, from 1970 TEK (Turkish Electric Association)
Original Function:	Electric production
Present Function:	Santral İstanbul: A complex of public functions: Museum of Energy, Contemporary artistic and cultural activities, a public library, open air recreation areas, international artist' residences and educational units.
Conservation decree:	It is registered by Istanbul Conservation Institution of Cultural and Natural Properties no 1. with decision no.2532 in 06.03.1991.
Surface Area:	118.000 m ²

Figure 5.13. Info Sheet: Silahtarağa Power Plant

Significant Stages in the Technological and Historical Lifespan of the Site:

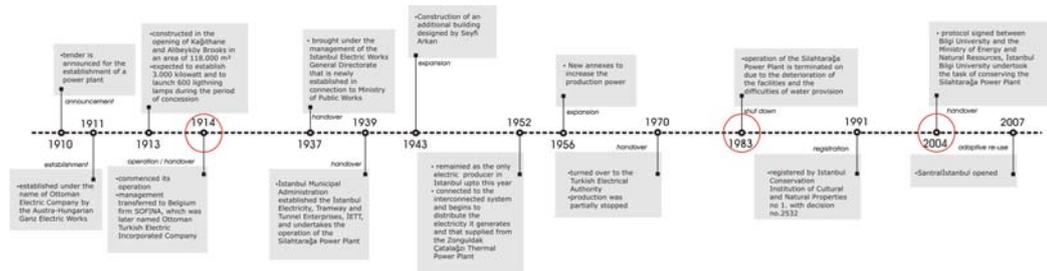


Figure 5.14: Life-Span of the Site

1910- A tender was announced for the establishment of a power plant that would produce electricity for İstanbul (Aksoy,2007)

1911- The Silahtaraga Power Plant was established in the Golden Horn under the name of Ottoman Electric Company by the Austra-Hungarian Ganz Electric Works based in Budapest.

1913- The factory was constructed in the opening between Kağıthane and Alibeyköy Brooks at an area of 118.000 m². This site is preferred since its location eased the coal transfer through water transportation (İETT Dergisi, 1957a:5).

1914 – 1937 The Silahtaraga power plant was both the first power plant at the urban scale in the Ottoman Empire and the first thermal power plant that operated with coal. It consisted of a group of three turbine generators, six steam boilers, and related facilities. It was built with a capacity to generate 13,400 kW of electricity. The Silahtaraga Power Plant commenced its operation in 1914. Electricity is supplied to tramcars on 11 February 1914 and to the city network from the three step-centres located in Beyazıt, Tozkoparan and İstinye on 14 February 1914 (Aksoy,2007). The same year, the management of the plant was transferred to Belgium firm SOFINA, which was later named *Société Anonyme Turque d'Électricité* (Ottoman Turkish Electric Incorporated Company) (Kara, 1994:555). The enterprise continued the production by expanding until 1937.

The buildings that the plant comprises were not merely units that accommodate the equipment related to electricity generation. In addition to the buildings used

for production, the premises further includes many buildings intended for the social life of the plant's employees: residences for the workers and their families, a large assembly hall that could be used for special occasions such as weddings, at the same time used as a cinema theatre, clubhouses, sanitary bath for the workers, and even a small football field. The Silahtarağa Power Plant was one of the first examples of the entire modern industrial facilities such as the cafeteria, lounge, and infirmary.

1937- End of SOFINA Period. The Turkish Government buys the Power Plant. It was brought under the management of the Istanbul Electric Works General Directorate that was newly established in connection to Ministry of Public Works. (Aksoy,2007)

1939- The İstanbul Municipal Administration established the İstanbul Electricity, Tramway and Tunnel Enterprises, İETT, and undertakes the operation of the Silahtarağa Power Plant. (Aksoy,2007)

1938-1952 Remains as the only electric producer in Istanbul and it remained active with other firms that were established after 1952 (Toprak, 1993:478).

1943 – 1944 Construction of an additional building designed by Seyfi Arkan. The annex engine room, which was desined by Seyfi Arkan, contributed to the architectural and technological value of the original building owing to its façade organization and interior equipments. The Arkan's building was connected to the engine room and to the boiler room through various/different elevations.(Köksal,2005)

1952- The Power Plant was linked to the interconnected system and begins to distribute the electricity it generates and that supplied from the Zonguldak Çatalağzı Thermal Power Plant. (Aksoy,2007)

1956 - New annexes to increase the production power (İETT Dergisi, 1957b:1) (Figure D.18).

1970 - The Power Plant was turned over to the Turkish Electrical Authority (TEK). The production was partially stopped. (Aksoy,2007)

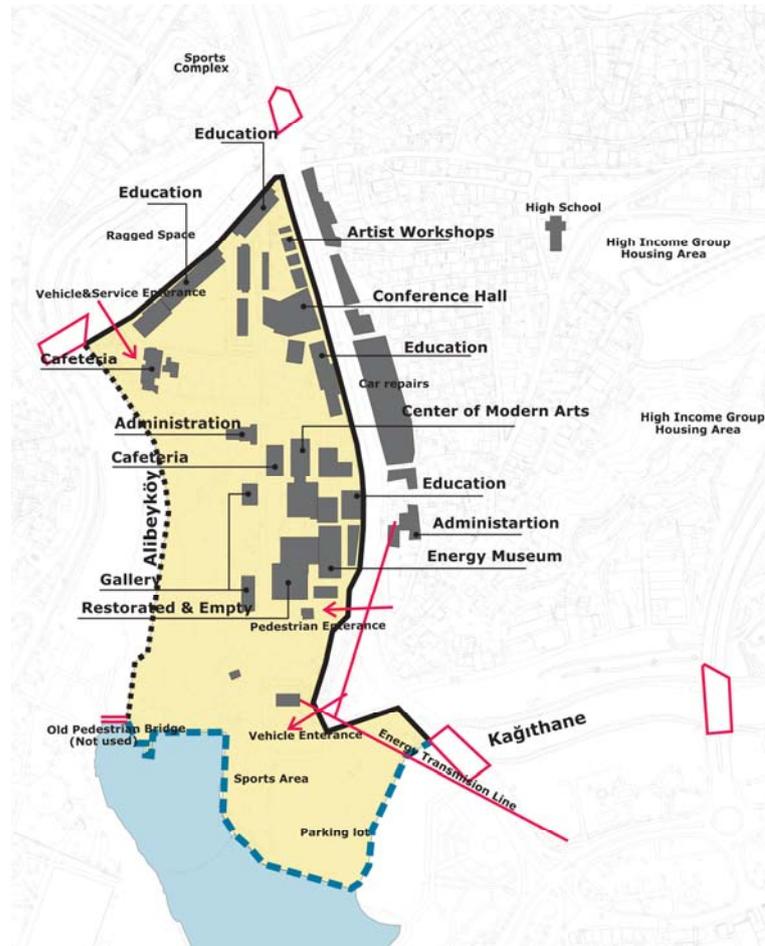
1983- The operation of the Silahtarağa Power Plant was terminated on 18 March 1983 due to the deterioration of the facilities and the difficulties of water provision.

1991- The Silahtarağa Power Plant was registered by decree of the Directorate of the Regional Committee of Number 1 for the Protection of Cultural and Natural Heritage. .(Aksoy,2007)

2004- With the protocol signed between Bilgi University and the Ministry of Energy and Natural Resources, İstanbul Bilgi University undertook the task of conserving the Silahtarağa Power Plant

2005- The project for the conversion of the Silahtarağa Power Plant into Santralistanbul is accepted by the Committee for the Protection of Cultural and Natural Heritage, and İstanbul Bilgi University launches the project (Aksoy,2007).

2007- ‘Santral İstanbul’ was opened as a Culture and Art Centre.



OPPORTUNITIES

1. Being surrounded by the streams of Kağıthane and Alibeyk6y
2. Being on the edge of Haliç
3. Having ragged spaces adjacent to the site
4. Historical pedestrian bridge which can be restored and used today
5. Redevelopment potential of irregular housing settlements around the site
6. Being on the strong transportation routes
7. Green public spaces around the site
8. Having empty spaces on the site
9. Unused but restored buildings on the site
10. Entrance that can also be used as the vehicular entrance

CONSTRAINTS

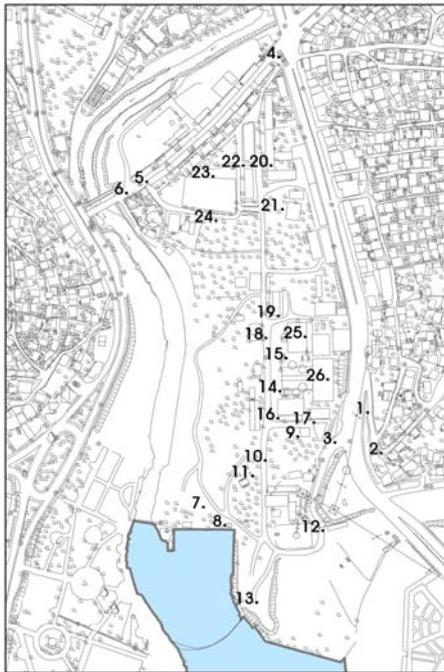
1. Being surrounded by the walls and the wired fence
2. Energy transmission line and power distribution building
3. Not accessible from Haliç
4. No reference to Haliç
5. Any structure of having historical, cultural or esthetical identity on the region
6. Not being on the pedestrian routes
7. Being surrounded by ragged spaces

Figure 5.15. Oportunities/Constraints – Silah tarağı- Santral istanbul

Present State of the Site:

The project '*Santral İstanbul*' for the "*adaptive re-use*" of *Silahtarağa Power Plant* is the *last and largest-scale project* implemented among the *Golden Horn transformation projects*. Silahtarağa, which was started to be constructed in **1911** and which remained active until 1983, is a significant breaking point for the modernization of Istanbul. The Power Plant is important not only in terms of the history of energy production but also for the social history of the city.

'Santral İstanbul', aims to serve as a centre that satisfies the cultural and educational needs of all segments of the society with its Museum of Energy, which exhibits engine houses no.1 and no.2 that have been conserved with all the production facilities they accommodated, the exhibition space which has been built in place of the formerly torn down boiler houses, the public library, classroom buildings, cultural programs, information documentation and archival resources, artist' residences, science and art-oriented excursions and educational programs that are open to the utilization and participation of the public at large.(Aksoy,2007)



1. Silahatarağa Power Plant
Santralistanbul Culture and Art Center



Library , under refurbishment , Photo No.14



Modern Art Museum , Photo No.15



Library , under refurbishment , Photo No.16

Administrative Building – Photo No.17



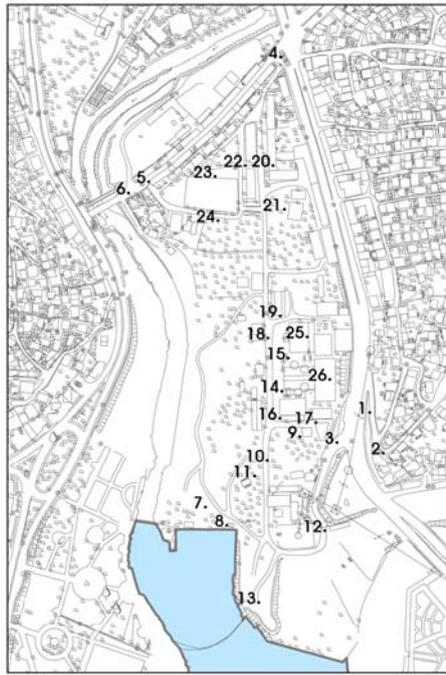
Cafe – Photo No.18



Cafe – Photo No.19



Figure 5.16. Photos from Silahatarağa -Santral İstanbul
(Source: Author's archive,2009)



1. Silah taraḡa Power Plant
Santral Istanbul Culture and Art Center



Residential – Photo No.20



Administrative – Photo No.21



Residential – Photo No.22

Education(left) & Residential (right) - Photo No.23



Cafe – Photo No.24



Modern Art Museum - inside – Photo No.25

Energy Museum - Inside – Photo No.26



Figure 5.17. Photos from Silah taraḡa - Santral İstanbul
(Source: Author’s archive, 2009)

More than USD 45 million was spent for the implementation of the project. Funding of the project was covered by İstanbul Bilgi University from private

sector which were mainly ‘Ciner Group’ and ‘Doğus Group’ as strategic founding members and ‘Kale Grubu’ & ‘İstanbul Metropolitan Municipality’ as the main sponsors.

Santral İstanbul, as project that aims to restore an industrial heritage for utilisation, has taken its place among the rare practices in İstanbul. While naming the power plant as “Santral İstanbul”, İstanbul Bilgi University aims at reminding the original function of the factory which was crucial for the collective memory of the city. This new title also points to the primary principle in restoring the Silahtarağa Power Plant is to carry to the 21st century the social transformation role that electricity has once played, and likewise introduce the contemporary productive energies, namely knowledge, education, culture and art, within the context of a creative environment according to the needs and approaches of today (Aksoy,2007)

5.5.2. Şahbaz Ağıya Mahdumları Brick Factory



Location:	Sütlüce
Year of Establishment:	1882
Ownership:	Şahbaz Ağıya (factory) TEKEL (land)
Original Function:	Brick production
Present Function:	A Complex of Public Functions: Miniaturk, Go-kart, Soccer Field
Conservation decree:	It is not registered.
Surface Area:	

Figure 5.18. Info Sheet Şahbaz Ağıya Mahdumları Brick Factory

Significant Stages in the Technological and Historical Lifespan of the Site:

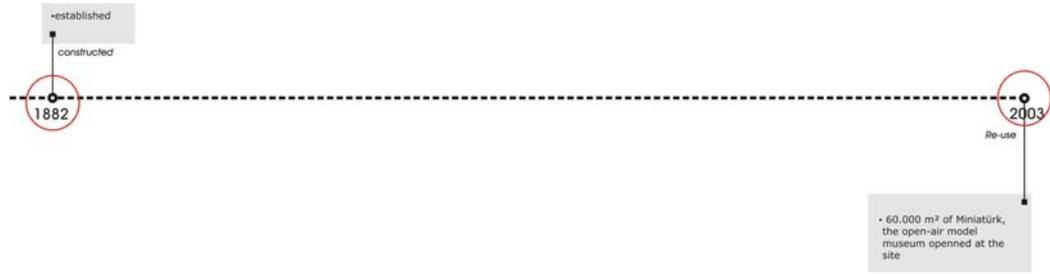


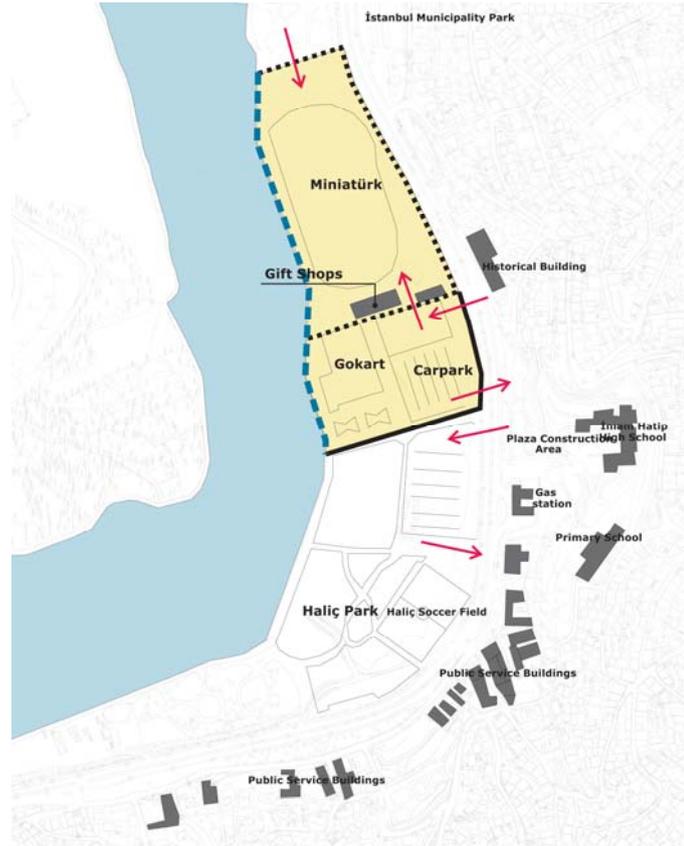
Figure 5.19. Life-Span of the Site

1882 – Established in 1882 in Sötlüce, on the northern shore of the Golden Horn (Ökçün, 1997:81). A plan of 1918 demonstrates that the factory was composed of rectangular blocks arrayed side by side. There is not much information about the management system and architectural characteristics of the factory.

2003 – Open-air model museum ‘Miniaturk’ is opened at part of the site by İstanbul Metropolitan Museum.

Present State of the Site:

The original structure was completely destroyed and demolished. Today, an open-air model museum ‘Miniaturk’ is located at the site over 60.000 m² which was built for USD 15 million. The rest of the site is used for recreational purposes.



OPPORTUNITIES

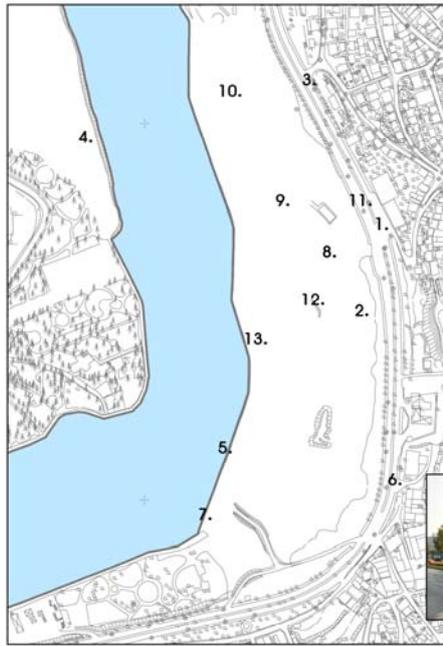
2. Being on the edge of Haliç
3. Redevelopment potential of irregular housing settlements around the site
4. Being on the strong transportation routes
5. Having available space for permanent or temporary landuse activities
6. Having an historical warehouse

CONSTRAINTS

1. Obscure boundary
2. Any post-industrial structure or building on the site
3. Any structure of having historical, cultural or esthetical identity on the region
4. Being surrounded by irregular housing areas
5. No reference to Haliç
6. Not accessible from Haliç
7. Plaza constructions on the empty and visual accessible points around the site
8. Not being on the pedestrian routes

Figure 5.20. Oppotunities/Constraints – Şahbaz Ağiya Brick Factory

2. Şahbaz Ağiya Mahtunları Brick Factory



Historical Warehouse Building (across the site) – Photo No.01



View from main street (across the site) – Photo No.02



Exterior Wall of Miniaturk Site from main street – Photo No. 03



View of site from west bank of The Golden Horn – Photo No.04

Public Garden – Photo No.05



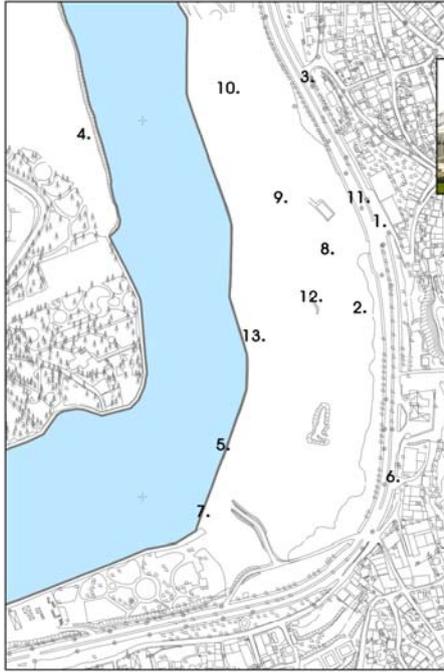
Football Pitch – Photo No.06

Public Garden – Photo No.07



Figure: 5.21. Photos from Şahbaz Ağiya Brick Factory Site
(Source: Author’s archive,2009)

2. Şahbaz Ağiya Mahtunları Brick Factory



Istanbul Municipality Information Office Tent - Photo No.08



Miniaturk - Photo No.09



Miniaturk - Photo No.10

View of site from main street - Photo No.11



Istanbul Municipality Information Office Tent - Photo No.12

Public Garden Green Area - Photo No.13



Figure: 5.22. Photos from Şahbaz Ağiya Brick Factory Site
(Source: Author's archive,2009)

5.5.3. Sütlüce Slaughterhouse - Sütlüce Congress and Cultural Center



Location:	Sütlüce/Beyoğlu
Year of Establishment:	1919 - 1923
Ownership:	Istanbul Metropolitan Municipality
Original Function:	Meat slaughtering, processing and storing
Present Function:	Cultural and Art center
Conservation decree:	The parts of the slaughterhouse that were designed by Vedad Tek were registered by the Conservation Association of Cultural and Natural Properties No.1 with decision no. 313 in 11.03.1988
Surface Area:	Original building was situated on a total area of 20.000m ² . Reconstructed complex sits on 24.000 m ² ground floors on a total area of 73.000 m ² . It is composed of 5 separate blocks of four storeys

Figure 5.23. Info Sheet: Sütlüce Slaughterhouse

Significant Stages in the Technological and Historical Lifespan of the Site:

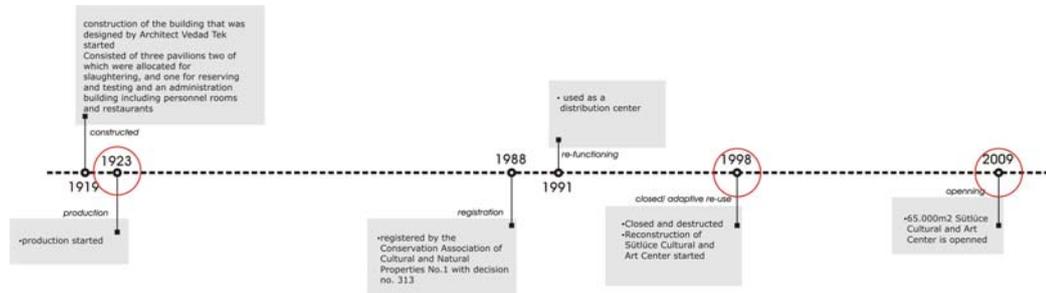


Figure 5.24. Life-Span of the Site

1919 - The construction of the building that was designed by Architect Vedad Tek started in 29 November 1919 in Karaağaç/Sütlüce, on the northern shore of the Golden Horn, (Batur, 2003:161). Vedad Tek designed three pavilions two of which were allocated for slaughtering, and one for reserving and testing and an administration building including personnel rooms and restaurants (Batur, 2003:161)

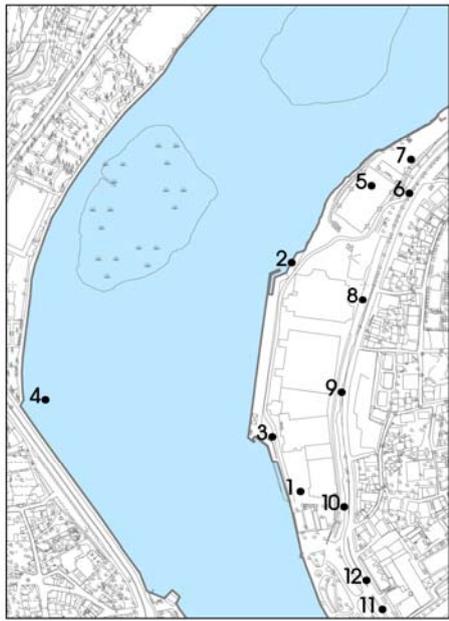
1991 – Following the move of the slaughterhouse from Sütlüce in 1991, the enterprise was used as a distribution center.

1997 - The re-use of the enterprise came into the agenda. The building, however, was closed and destructed due to the difficulties of the conveyor system. However, the lack of an adequate documentation resulted in the disappearance of the data pertaining to the architectural specifics of the slaughterhouse. (Köksal,2005)

1998-2009 – Construction of Sütlüce Cultural Center.

Present State of the Site:

After demolition of the original structure, except only a very small block, a new cultural centre was built at the site which aims to reflect architectural features of the original structure. It took almost 11 years for the completion of the centre and almost USD 220 million was spent until completion.



3. Sütlüce Slaughterhouse
Sütlüce Congress and Cultural Center



View from site – Photo No.01



View from site – Photo No.02



View from site – Photo No.03



View of site from west bank of The Golden Horn - Photo No.04

Parking lot – Photo No.05



Vehicle entrance from main street – Photo 06

Parking lot – Photo No.07

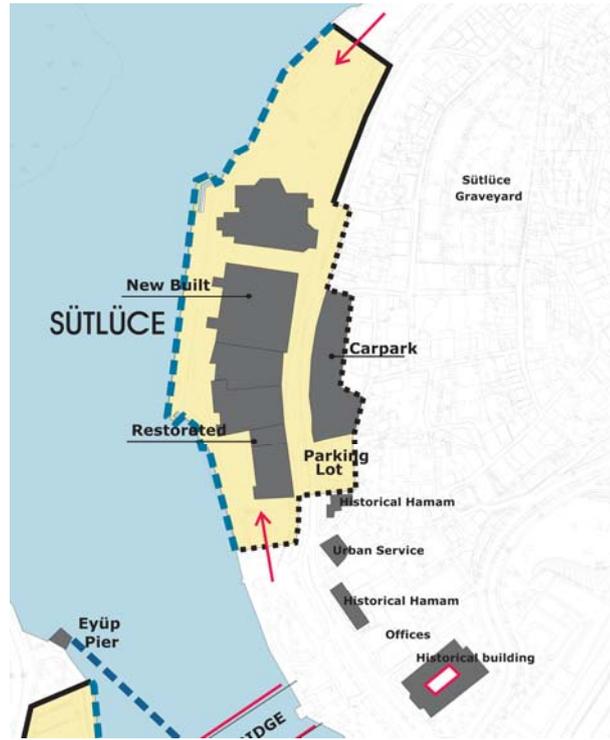


Figure 5.25. Photos from Sütlüce Congress Centre
(Source: Author's archive,2009)

Conservation Association of Cultural and Natural Properties No.1 started legal procedures for the unauthorized destruction of the slaughterhouse (2004) (Salman, 1994). (Köksal,2005)

Sütlüce Cultural Centre is located on 65,000 sq.m land. It consists of;

- 88,000 sq.m construction area,
- 9,400 sq.m of foyer and exhibition area,,
- 7,700 sq.m of open-air activity area,
- 8,250 sq.m quay,
- 17,000 sq.m green area,
- 700 vehicle capacity of multistory car park,
- 5 Congress Hall,
- Concert hall for 3,035 people,
- Theatre for 1,120 people
- 3 Cinema hall for 900 people. E
- 14 meeting room
- 3 restaurants for 650 people (ibb.bel.gov.tr).



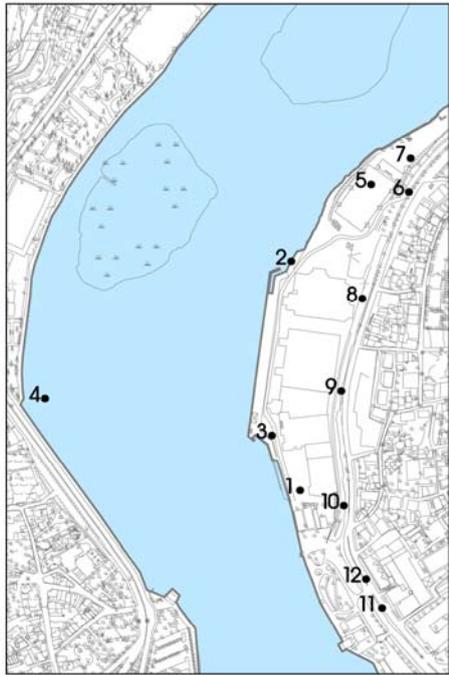
OPPORTUNITIES

1. Being on the edge of Haliç
2. Old Galata Bridge located in between Feshane and Sütlüce
3. Situated on the walking distance to Feshane (across the Golden Horn)
4. Green public spaces around the site
5. Being close to Eyüp Pier
6. Being on the strong transportation routes
7. Having empty spaces on the site
8. Having a restored post-industrial building on the site

CONSTRAINTS

1. Being surrounded by the walls and the wired fence
2. Not being on the pedestrian routes
3. Not accessible from Haliç
4. Desultory green spaces on the site
5. Reconstructed post-industrial buildings on the site

Figure 5.26. Opportunities/Constraints – Sütlüce Congress Centre



3. Sütlüce Slaughterhouse
Sütlüce Congress and Cultural Center



View from site – Photo No.08



View from site – Photo No.09

View from site – Photo No.10



Office Building across main street – Photo.No.11

Residential building across main street – Photo No.12



Figure 5.27. Photos from Sütlüce Congress Centre
(Source: Author's archive,2009)

**5.5.4. Feshane Fabrika-ı Hümâyunu (Feshane-ı Âmire) /
Feshane International Fair, Congress & Cultural Centre**



Location:	Defterdar/Eyüp
Year of Establishment:	1833
Ownership:	Ottoman State, from 1937 Sümerbank, and in present, Istanbul Metropolitan Municipality
Original Function:	Fez and broadcloth production for the army. From 1843, silent cloth, carpet and other textiles.
Present Function:	From 1998, exposition center: exhibition halls, concerts area, congress hall. However, except from Ramadan, when it hosts a number of entertainments for the local population, it remains unnoticed by most of Istanbul's residents.
Conservation decree:	It was registered as cultural property by İstanbul Conservation Association of Cultural and Natural Properties No.1 with decision no. 9591 in 15.01.1977.
Surface Area:	56,000 m ²

Figure 5.28. Info Sheet: Feshane-ı Âmire

Significant Stages in the Technological and Historical Lifespan of the Site:

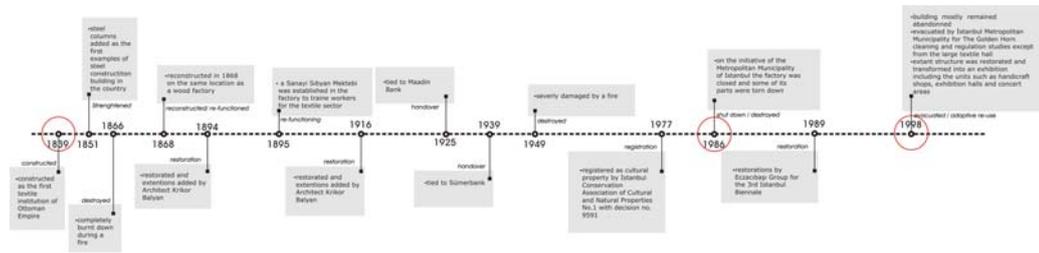


Figure 5.29. Life-Span of the Site

1839 – Feshane was built with the order of Sultan Abdulmecit in order to meet the fes and woollen cloth needs of the Ottoman army. It was the first textile institution of Ottoman Empire.

1851 – Steel columns which were brought in from Belgium, were assembled that made the building one of the first examples of steel construction building in the country.

1866 - The factory was completely burnt down during a fire.

1868 –Reconstructed in 1868 on the same location as a wood factory [Kıraç, 2001] (Köksal and Kargin 2003: 433, Dölen 1994: 298).

1894 – 1916 – Restored and extensions between 1894 – 1916 by Architect Krikor Balyan.

1895 *Sanayi Sıbyan Mektebi* was established in the factory to train workers for the textile sector (Ekiz 2001: 135). By 1916 Feshane was the largest Turkish textile- manufacturing establishment and, along with a second factory in Hereke, generated nearly half of the total Turkish textile production.

1925 – The ownership is transferred from Military administration to Maadin Bank.

1939 – ‘Feshane Mensucat A.Ş.’ is closed and changed into Sümerbank Financial Department Factory.

1949 – Feshane was severely damaged in 1949 by a fire. Damaged parts were then reconstructed.

1977 - Registered by the the decree of the Committee for the Protection of Cultural and Natural Heritage.

1980s - Restoration and adaptive re-use works

1986 – In 1986 on the initiative of the Metropolitan Municipality of Istanbul the factory was closed and some of its parts were torn down

1989 - Restorations⁶ by Eczacıbaşı Group for the 3rd Istanbul Biennale in 1989 by the sponsorship of Istanbul Metropolitan Municipality. (Bezmez,2008). Following the 1990 Biennale, the factory was transferred to the Metropolitan Municipality due to the conflicts between the Foundation and the Municipality and consequently started the process of adaptive-reuse. The annexes were removed during the reorganization works. However, certain equipments of the factory were lost and the northern façade submerged

Later Eczacıbaşı group requested from the Municipality to transform the building into a modern art museum. However political conflicts and ideological differentiations prevented this plan

1998 - Until 1998, the building mostly remained abandoned; floods damaged the building's physical appearance.(Bezmez,2008) - Evacuated in 1998 by İBB for The Golden Horn cleaning and regulation studies. Destructed, except from the large textile hall (approximately 70x140 meters). (Bezmez,2009). . The structure was covered by a saw tooth roof so as to maximize the sunlight acquisition.

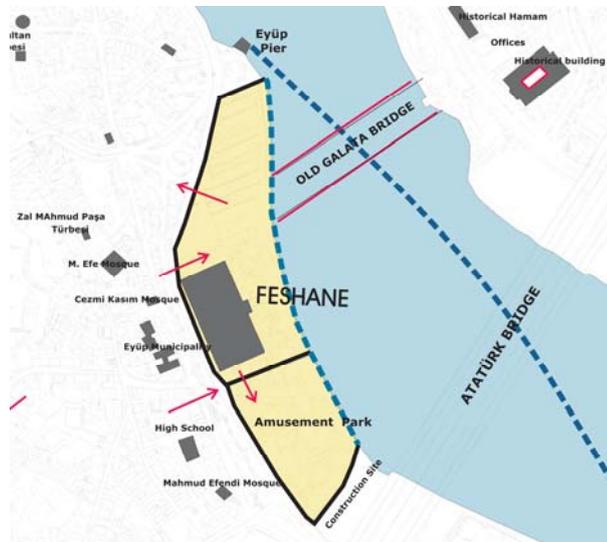
1998– The restoration works completed for the adaptive re-use of the structure as an exhibition and congress centre.

⁶ Gae Aulenti, who had formerly worked in the reorganization of the Musée d'Orsay in Paris, was invited for the reorganization of the structure which had to be prepared for the Bienal within a very short time (Soley, 1992:78-80).

Present State of the Site:

The existing structure was restored and transformed into an exhibition and congress centre. Restoration was done by Mehmet Ekiz in 1998 so as to include the units such as handicraft shops, exhibition halls and concert areas (Ekiz, 2001:135). Total cost of the project was almost USD 6.5 million (Köksal,2005)

Total land of the site is 56,000m² . The main building has a closed area of 8000m² and it is made up of 5 sections of different sizes. Today, there is no reference available to the original function of the structure. Within the site there is also an amusement park for 38,000 m². (<http://www.feshane.com.tr>)



OPPORTUNITIES

1. Being on the edge of Haliç
2. Being close to Eyüp Pier
3. Old Galata Bridge located in between Feshane and Sütluce
4. Being close to the Fortification Wall
5. Situated on the walking distance to Sütluce (across the Golden Horn)
6. Being on the strong transportation routes
7. Structures of having historical, cultural or esthetical identity on the region
8. Green public spaces around the site

CONSTRAINTS

1. Being surrounded by the walls
2. Not being on the pedestrian routes
3. Not accessible from Haliç
4. No reference to Haliç
5. Weak relation with its surrounding
6. Reconstructed post-industrial building on the site

Figure 5.30. Oppotunities/Constraints – Feshane Exhibiton and Congress Centre



4. Feshane Fabrika-i Hümayunu (Feshane-i Amire)
Feshane International Fair, Congress & Cultural Centre



Feshane from main street – Photo No.1



Feshane from main street – Photo No.2



Amusement Park Entrance – Photo No.3



View from east bank of The Golden Horn – Photo No.4

Main Entrance to Feshane Building – Photo No.5



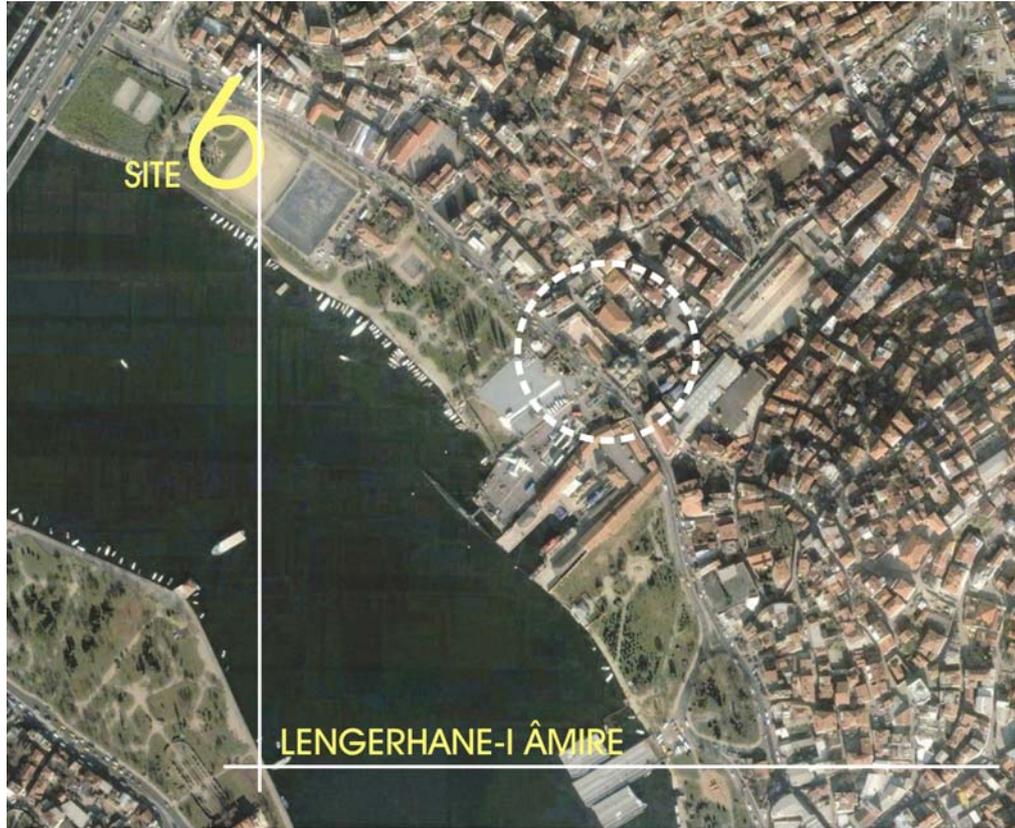
View from inside – Photo No.6

Feshane from The Golden Horn side – Photo No.7



Figure 5.31. Photos from Feshane Exhibiton and Congress Centre
(Source: Author's archive,2009))

5.5.5 Lengerhane-i Âmire / Rahmi Koç Industry Museum



Location:	Hasköy
Year of Establishment:	1703-1730
Ownership:	State business, at present Rahmi M. Koç and the family
Original Function:	Anchor (lenger) production, anchor casting
Present Function:	Rahmi Koç Industrial museum.
Conservation decree:	Lengerhane was registered by Istanbul Conservation Association of Cultural and Natural Properties No.1 with decision no. 2109 in 26.09.1990 as a second-degree historical asset, while the small stone building was registered as a third degree-historical asset.
Surface Area:	Lengerhane occupies an area of approximately 2100 m ² . In the area where anchor production and cannon foundry activities are realized there is also a stone building with wood truss and tiled roof

Figure 5.32. Info Sheet: Lengerhane-i Âmire

Significant Stages in the Technological and Historical Lifespan of the Site:

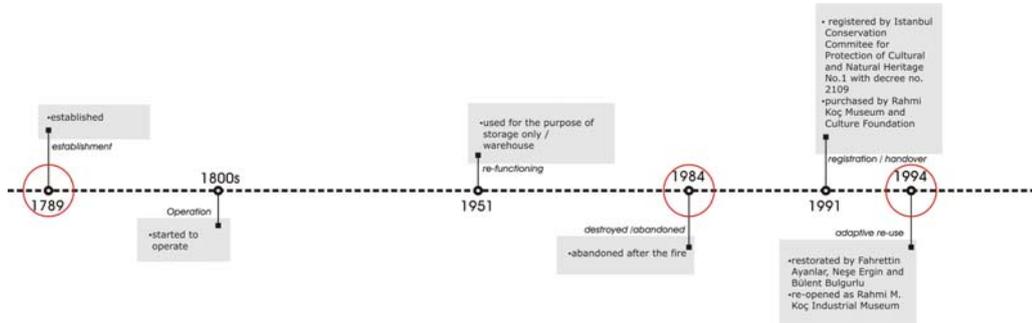


Figure 5.33. Life-Span of the Site

1789-1807 Lengerhane refers to the building where the anchors and chains of the Ottoman Navy were manufactured. Its foundations date from the twelfth century Byzantine Empire, but the building itself was constructed in the seventeenth century during the reign of Sultan Ahmet III. The building was subsequently restored in the reign of Sultan Selim III between 1789 – 1807. (Bezmez,2009). It started to operate after the last quarter of the 18th century and it served as cannon foundry (Tanyeli, 1995:120).

1951 - The factory was used for the purpose of storage only / warehouse

1984 –Lengerhane suffered an extensive fire in which certain steel tie beams, lad sheds and the roof were damaged. Following this incident it remained neglected and non-functional for years. (Bezmez,2009).

1991 – Registered by decree of the İstanbul Directorate of the Regional Committee of Number 1 for the Protection of Cultural and Natural Heritage, decree no.2109.

Following the evacuation of the factory, The Rahmi M. Koç Museum and Culture Foundation bought Lengerhane in 1991 from its owner at the time, the Turkish State Monopoly of Tobacco Products, Salt and Alcohol Enterprises Incorporation (TEKEL). Restorations which were carried on by one of the Group’s construction firms and financed by the Koç Group itself, were consulted by Fahrettin Ayanlar, Neşe Ergin and Bülent Bulgurlu and took around 3 years. (Bezmez,2009)

1994 – Rahmi Koç Industry museum was opened after the completion of restoration works.

1996 – Due to its proximity to Lengerhane and its waterfront, the Foundation purchased The Şirket-i Hayriye ‘Hasköy’ Shipyard, which they thought of it as an ideal extension for the existing Museum to increase the inadequate capacity after receiving big public interest. (Bezmez,2009)

Present State of the Site:

Present state of *Lengerhane* site is assessed in section 5.5.6. together with *Şirket-i Hayriye- Hasköy Shipyard* since both sites are currently used as Rahmi Koç Industry Museum.



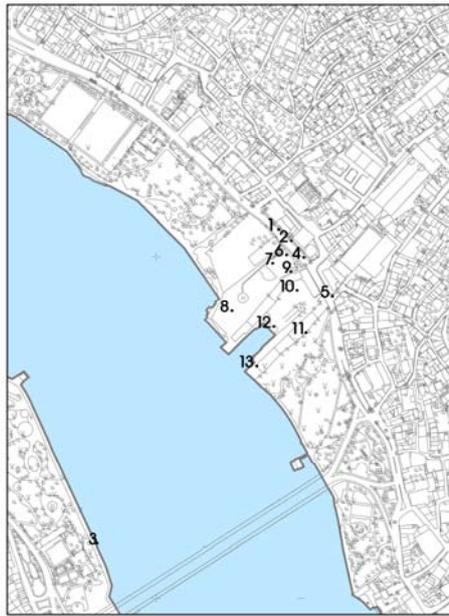
OPPORTUNITIES

1. Restorated and adaptive-re-used post-industrial buildings as the Rahmi Koç Industrial Museum
2. Being on the strong transportation routes
3. Unused and historical Hasköy Worst Yarn Factory adjacent to the site
4. Green public spaces around the site
5. Being on the edge of Haliç

CONSTRAINTS

1. Any physical linkage between the Lengerhane and Hasköy Shipyard
2. Being surrounded by the walls and the wired fence
3. Not accessible from Haliç
8. Not being on the pedestrian routes
9. Weak relation with its surrounding

Figure 5.34. Oppotunities/Constraints – Rahmi Koç Industry Museum



5. Lengerhane-i Amire
Rahmi Koç Industry Museum



Entrance to Lengerhane – Photo No.01



Lengerhane Building – Photo No.02



View from west bank of The Golden Horn – Photo 03

Hasköy Spinning Factory near Lengerhane – Photo 04



Hasköy Spinning Factory near Lengerhane – Photo 05

Main Entrance to Hasköy Shipyard – Photo 06



Figure 5.35. Photos from Lengerhane/Rahmi Koç Industry Museum
(Source: Author's archive,2009))

**5.5.6. Hasköy Shipyard (Şirket-i Hayriye Shipyard) /
Rahmi Koç Industry Museum**



Location:	Hasköy
Year of Establishment:	1861
Ownership:	Şirket-i Hayriye, and in present, Rahmi M. Koç
Original Function:	Ship repair and boat production/ vessel maintenance and repair
Present Function:	Museum of 11,250 square meters of covered space.
Conservation decree:	It was registered by İstanbul Conservation Association of Cultural and Natural Properties No.1 with decision no. 6464 in 15.03.1995.
Surface Area:	A closed area of 11.250 m2 in a site of 20.250 m2

Figure 5.36. Info Sheet: Hasköy Shipyard

Significant Stages in the Technological and Historical Lifespan of the Site:

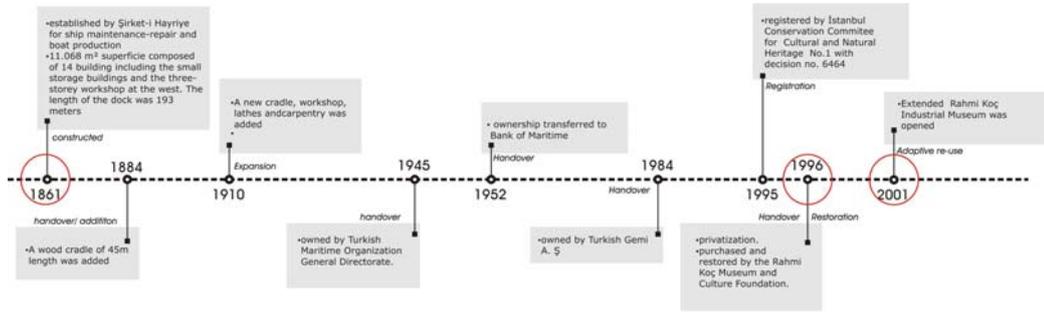


Figure 5.37. Life-Span of the Site

1861 - The Shipyard was established in 1861 by Ottoman Marine Company - *Şirket-i Hayriye* for ship maintenance, repair and boat production (Tutel, 1994:12). The complex which had an 11.068 m² covered area, was composed of 14 building including the small storage buildings and the three-storey workshop at the west. The length of the dock was 193 meters (Tutel, 1994:12; Ergin, 2001:136)

1884 – A wood cradle of 45m length was added.

1910 – A new cradle, a workshop, lathes and carpentry was added (Tutel, 1994:12).

1945 – The enterprise was owned by Turkish Maritime Organization General Directorate.

1952 – The ownership of the enterprise was transferred to Bank of Maritime.

1984 – The enterprise was owned by Turkish Gemi A.Ş. During this period, the maintenance and repair of inner-city passenger and ferryboats and small ships were done in the shipyard.

1995 -Registered by decree of the İstanbul Directorate of the Regional Committee of Number 1 for the Protection of Cultural and Natural Heritage, decree no.6464.

1996 – The dockyard was privatized. The shipyard was purchased by the Rahmi Koç Museum and Culture Foundation in 20 November 1996.

2001 – The extended museum was opened in 2001.

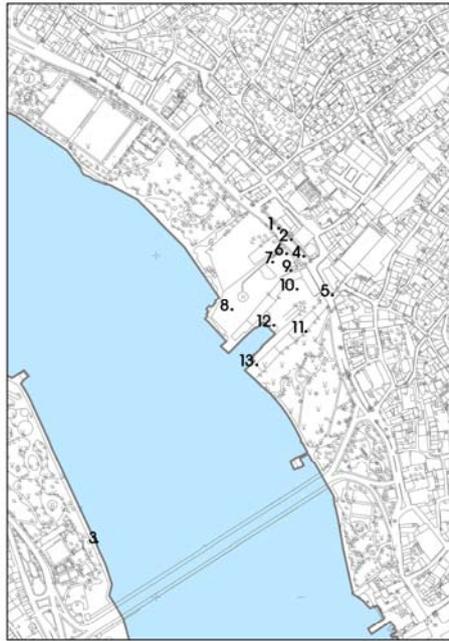
Present State of the Sites *Lengerhane* and *Şirket-i Hayriye-Hasköy Shipyard*:

Both sites are currently functioning as a part of the Rahmi M. Koç Museum which is the first major museum in Turkey dedicated to the history of Transport, Industry and Communications. (.rmk-museum.org.tr). The general view of the Museum's mission evolved from a collection of the Koç Group's initial products to a general display of various industrial and engineering artifacts from all countries and periods up to the present day. (Bezmez,2009)

The first phase of the Museum, *Lengerhane* site was opened in 1994 after three years of restoration works by Fahrettin Ayanlar, Neşe Ergin and Bülent Bulgurlu, which were carried on by one of the Group's construction firms. The original building was supplemented by an underground gallery as an exhibition area reached by a long glazed ramp, and finally opened in December 1994 (.rmk-museum.org.tr). During the restoration works the small stone building was collapsed during the excavation works realized in the site (Ayanlar, 1992:83). A steel mezzanine was added to the structure. (Köksal,2005)

The second phase of the Museum, *Hasköy Shipyard site* was opened in 2001. 14 derelict buildings plus the historic ship cradle and lathes which are today integrated into the open-air display area, were restored to their original condition as much as possible (rmk-museum.org.tr).

However, certain alterations were also made during the usage of structures: mezzanines were added and buildings were heightened by the deletion of the roof trusses (Ergin, 2001:136). A three storey concrete building which was an additional building located along the Golden Horn was destroyed during the adaptive re-use works. A single storey building was constructed in the same place. The site at the west of the Shipyard was organized as a parking area and an open-air exhibition center. The total ground area of the blocks making up the U shape in the Shipyard is 4300 m² and the total floor area is 7800 m² (Ergin, 2001:136). (Köksal 2005)



5. Lengerhane-i Amire
Rahmi Koç Industry Museum



Hasköy shipyard entrance – Photo 07



Hasköy shipyard– Photo 08



Hasköy shipyard– Photo 09



Hasköy Shipyards , Courtyard – Photo 10

Hasköy Shipyards, inside the museum – Photo No.11



Hasköy Shipyards – Photo No.12

Hasköy Shipyards – Photo No.13



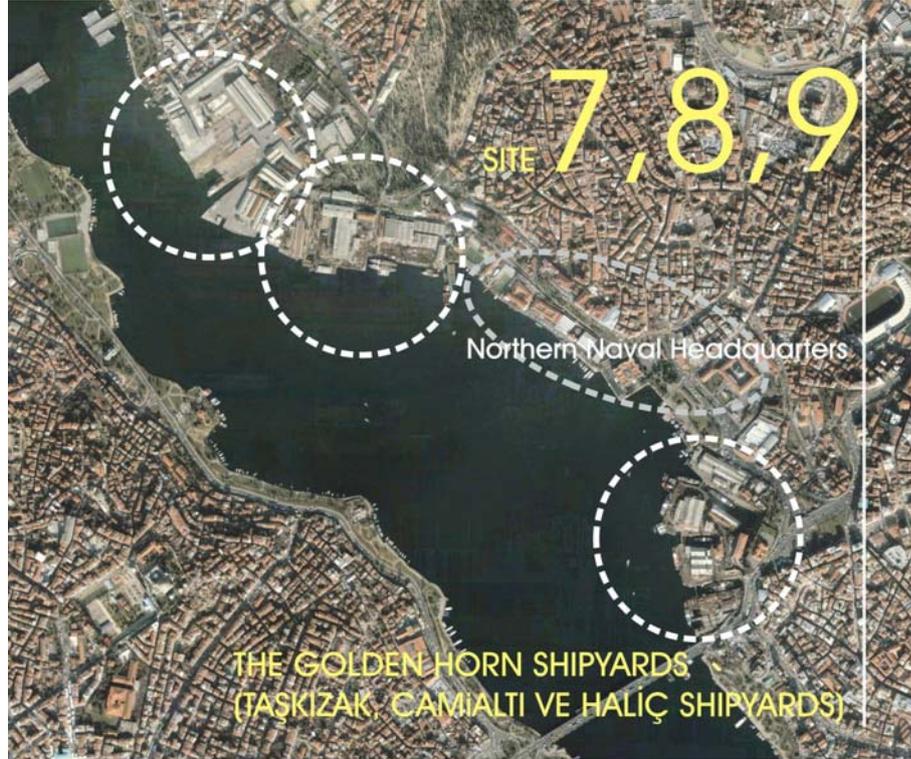
Figure 5.38. Photos from Hasköy Shipyards/Rahmi Koç Industry Museum
(Source: Author's archive,2009))

Together with Hasköy Shipyard exhibits opened in 2001, the museum has more than 11,000 square meters of exhibition galleries (rmk-museum.org.tr).

Apart from its collections, the site consists of a restaurant, a British pub, one coffee store, one tearoom, the museum shop, one seminar room with 130 seats, one multi-purpose gallery and an outdoor space suited for various gatherings. Kolay points out that the Foundation had to invest around US \$180 million for the purchase and restoration of the two buildings. According to the Museum, around half of the visitors are Turkish students. A rough estimate suggests that foreign tourists constitute only around 2% of visitors. Obviously the Museum is not a profit-oriented initiative and it serves more as a prestige investment, which has an impact within the local rather than the international scene. (Bezmez,2009)

In 2004 the Rahmi M. Koç Museology and Culture Foundation bid successfully in a tender for the sale of the adjoining parcel of land to the North of the Museum, which formerly belonged to the Turkish Alcohol and Cigarette Monopoly TEKEL. For a while the 7,000m² area was used as extra parking and a children's playground, but after permission several exhibits, playground and car-park were constructed at this area, and opened in 2007 (rmk-museum.org.tr).

5.5.7 THE GOLDEN HORN SHIPYARDS (TERSANE-I AMİRE) / TAŞKIZAK, CAMIALTI and HALIÇ SHIPYARDS



Location:	On the northern part of the Golden Horn, between Atatürk Bridge-Kasımpaşa and Hasköy
Year of Establishment:	15th century
Ownership:	Haliç Shipyard is tied to İstanbul Municipality İDO, and the Camialtı Shipyard is tied to Türkiye Denizcilik İşletmeleri Taşkızak Shipyard is tied to T. C. Deniz Kuvvetleri Komutanlığı
Original Function:	Ship production and the maintenance-repair. Health and education services were also provided in the Shipyard for the employees. The Shipyard had a significant role in the production of kazıklı foundation, coffer dam, bridge and pontoon and in the transportation of materials for the construction of large buildings such as mosque and the Külliye complex
Present Function:	Today the Golden Horn Shipyard operate only partially for ship production and maintenance-repair works.
Conservation decree:	It was registered as a conservation site by Istanbul Conservation Association of Cultural and Natural Properties No.1 with decision no. 6482 and with the meeting no. 379 in 22.03.1995.
Surface Area:	51hectar

Figure 5.39. Info Sheet -Golden Horn Shipyards

Significant Stages in the Technological and Historical Lifespan of the Site

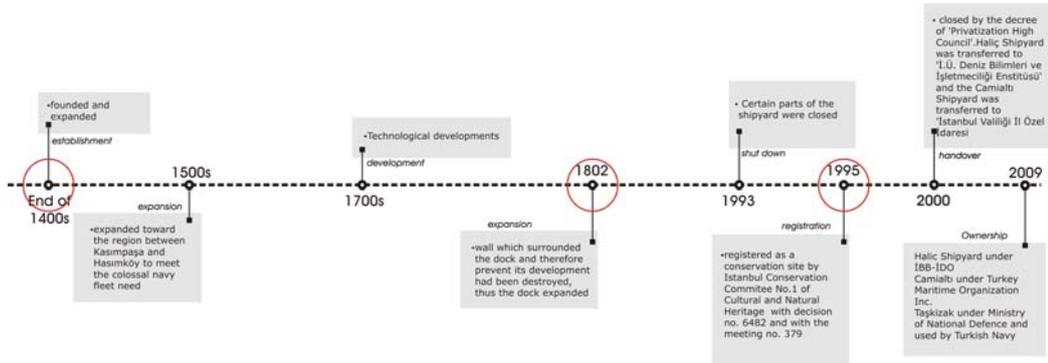


Figure 5.40. Life-Span of the Site

14th Century - The dockyards, which today deploy a shoreline of 2 km at the north bank of the Golden Horn, were originally founded by Fatih Sultan Mehmet after the conquest of Istanbul and expanded by the addition of a dungeon and a mosque between 1481 and 1488 (Ayvansarayi, 1865:15; Uzunçarşılı, 1988:396).

Early 16th century- The old dock was expanded toward the region between Kasımpaşa and Hasımköy to meet the colossal navy fleet need.

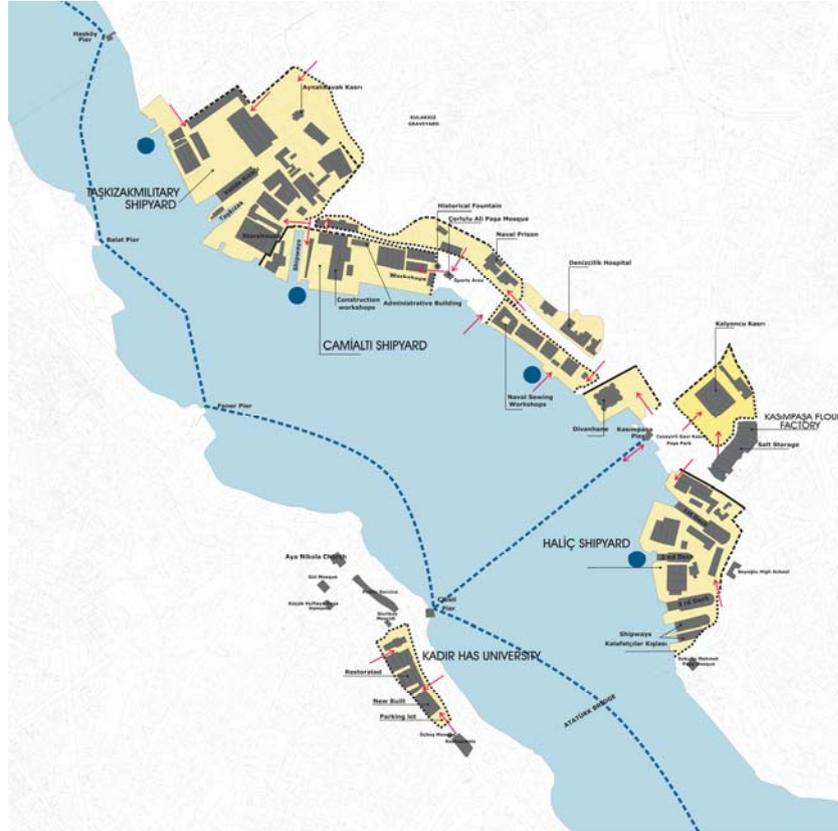
18th century - Alterations in the Turkish Navy had reflected to the docks. Technological developments were reflected in Ottoman Docks and Navy structures.

1802 - The wall which surrounded the dock and therefore prevent its development had been destroyed, thus the dock expanded towards the west to Aynalıkavak Kasrı. In this area Valide Kızağı, Taşkızak and Ağačkızak had been built in 1805.

1993 - Despite all of the interventions, the shipyards preserved their original function until the 20th century. Certain parts of the shipyard were closed after 1993. Except from the maintenance and repair activities in certain docks, the shipyards went into a rapid process of deterioration and obsolescence.

1995 – Registered as a cultural heritage by the decree of Istanbul Conservation Association of Cultural and Natural Properties Directorate No.1 with decree no. 6482 and with meeting no.379

2000 – The enterprise was closed by the decree of ‘Privatization High Council’. Haliç Shipyard of 69.000 m² was transferred to ‘İ.Ü. Deniz Bilimleri ve İşletmeciliği Enstitüsü’ and the Camialtı Shipyard of 72 000 m² was transferred to ‘İstanbul Valiliği İl Özel İdaresi (Köksal,2005)



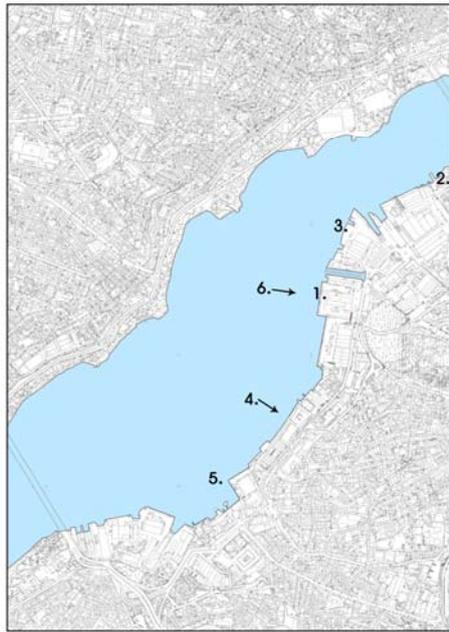
OPPORTUNITIES

1. Preserved property as being the property of military for years.
2. Being on the edge of Haliç
3. Being close to Kasımpaşa Pier
4. Unused (partially only) and undemolished Camialtı and Haliç Shipyards
5. Being on the strong transportation routes
6. Having strong landmarks on and around the site
7. Ease to access to Haliç as being shipyard
8. Potential entrance gates
9. Spatial unity of Tersane-i Amire

CONSTRAINTS

1. Fragmented property pattern
2. Being surrounded by the walls and the wired fence
3. Visual and geographical borders
4. Unregistered buildings and structures on the site
5. Preserved as sole building
6. Surrounded by dense housing settlement

Figure 5.41. Opportunities/Constraints – The Golden Horn Shipyards



7. Golden Horn Shipyards
Taşkızak Shipyard



Taşkızak Shipyard - Photo No.1



Entrance Gate from Aynalı Kavak St. - Photo No.2



Entrance Gate from Evliya Çelebi St. - Photo No.3

Denizcilik Dikimevi (front) , Military Hospital (rear) - Photo No.4



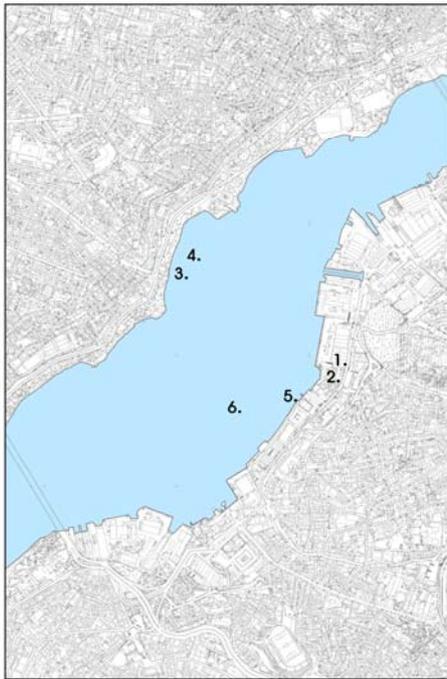
Divanhane - Photo No.5

Taşkızak Shipyard from Golden Horn - Photo No.6



Figure 5.42. Photos from Taşkızak Shipyard
(Source: Author's archive, 2009)

8. Golden Horn Shipyards
Camialti Shipyards



Camialti Shipyards , Workshop Entrance – Photo No.1



Camialti Shipyards , Main Entrance Gate – Photo No.2



Camialti Shipyards from west bank – Photo No.3

Camialti Shipyards from west bank – Photo No.4



Camialti Shipyards from neighbouring cafe - Photo No.5



Camialti Shipyards from west bank – Photo No.6

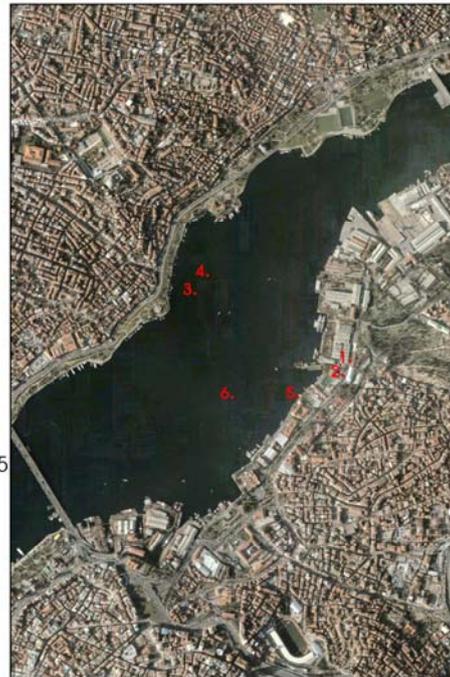


Figure 5.43. Photos from Camialti Shipyards
(Source:Author's archive,2009)

Present State of the Site:

Today, none of the three shipyards are functioning full capacity and mostly in obsolete state under different ownerships. *Haliç Shipyard* is operating under the rule of *İstanbul Metropolitan Municipality's enterprise İDO*, *Camialtı Shipyard* is operating under the rule of *Turkey Maritime Organization Inc.* and *Taşkızak Shipyard* is operating under *Ministry of National Defense* and used by *Turkish Navy Forces*.

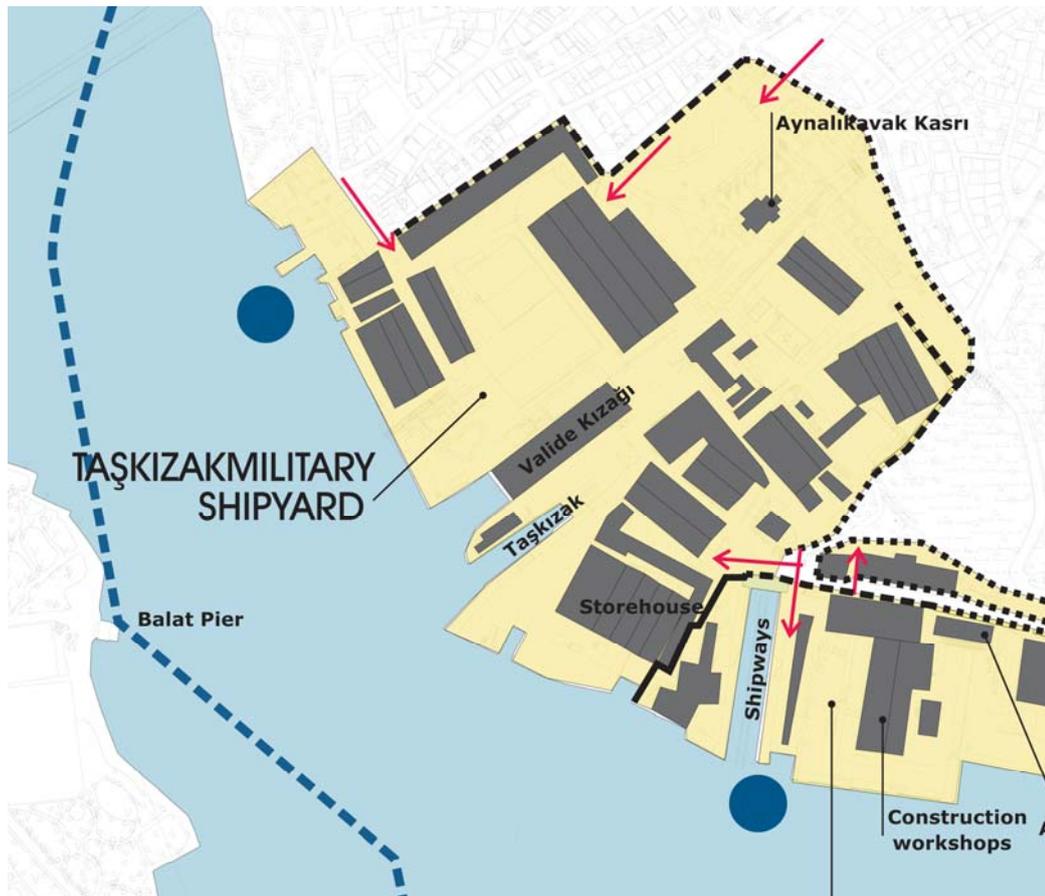


Figure 5.44. Taşkızak Shipyard

Despite recent worrisome news in the media for various plans of transformation projects for the Golden Horn Shipyards, no definite project has yet been

developed about the future of the shipyards.. The recent scenarios about the Golden Horn Shipyards, are observed to serve merely for speculative interests

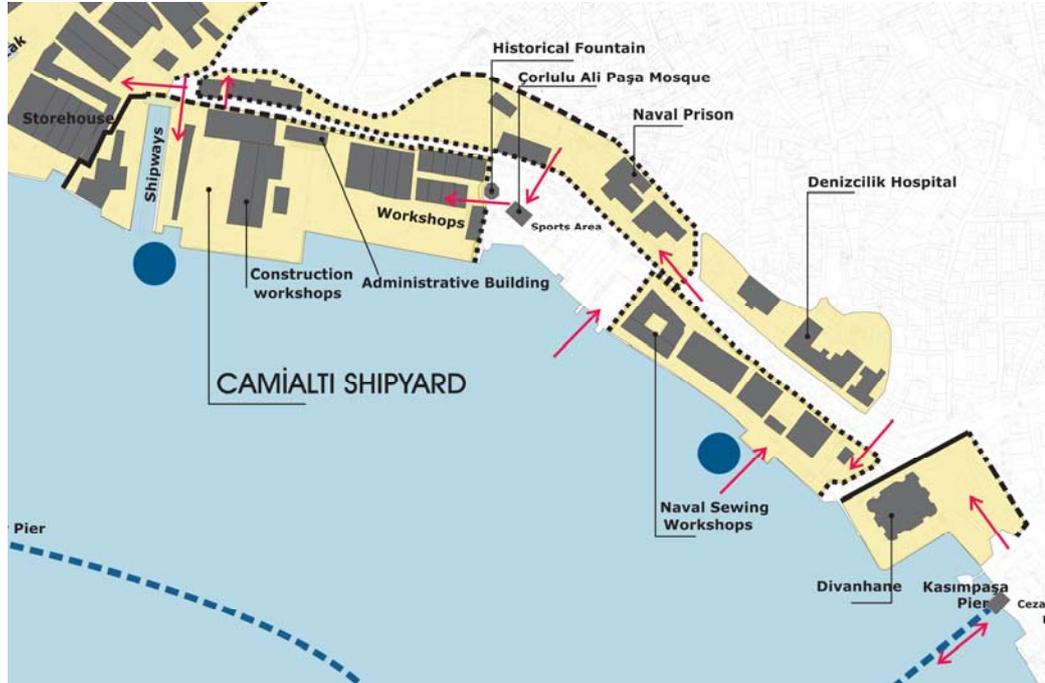


Figure 5.45. Camialtı Shipyards

The Golden Horn Shipyards were registered as historical heritage in 1995. The other individual structures in these industrial sites were also registered before the turn of the century. The conservation decree ruled the preservation of the original functions. In this sense, the removal of production, maintenance and repair related activities could not be permitted without a new decree of the Board.

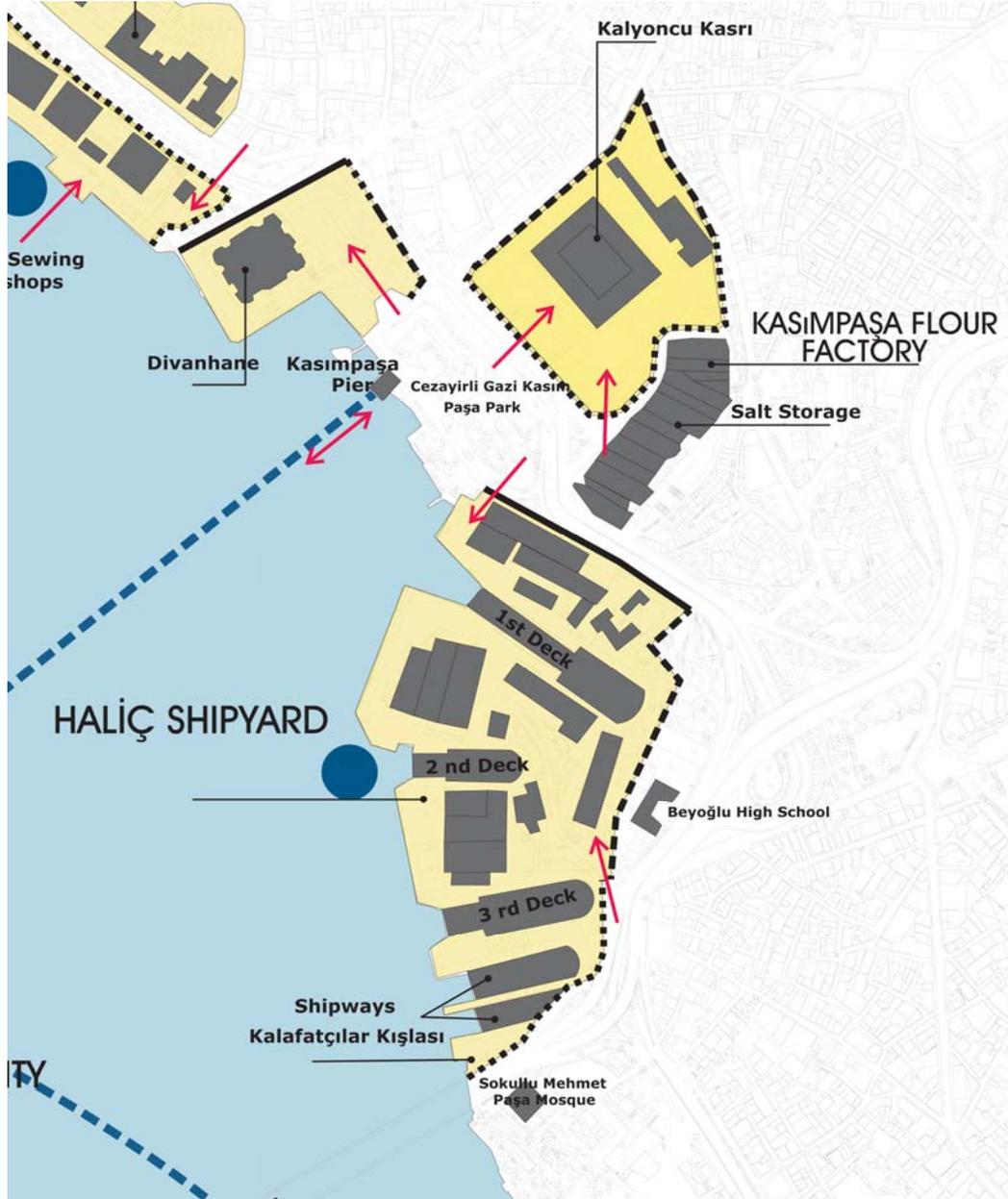


Figure 5.46. Haliç Shipyard

Although the future of such a crucial site is determined by legal decrees, the announcements of Istanbul Metropolitan Municipality and Istanbul Metropolitan Planning Office are quite threatening. The transfer of the complex to private firms, the tourism-based reuses, the construction permit for high-rise hotels and the assignment of new functions by individual interests are some of the threats confronted within the current administrative framework.

9. Golden Horn Shipyards
Haliç Shipyard



Haliç Shipyard from Refik Saydam St.- Photo No.01

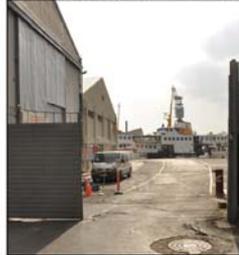


Haliç Shipyard from Atatürk Bridge.-Photo No.02



Haliç Shipyard from West Bank – Photo No.03

Entrance Gate from Evliya Çelebi St. – Photo No.04



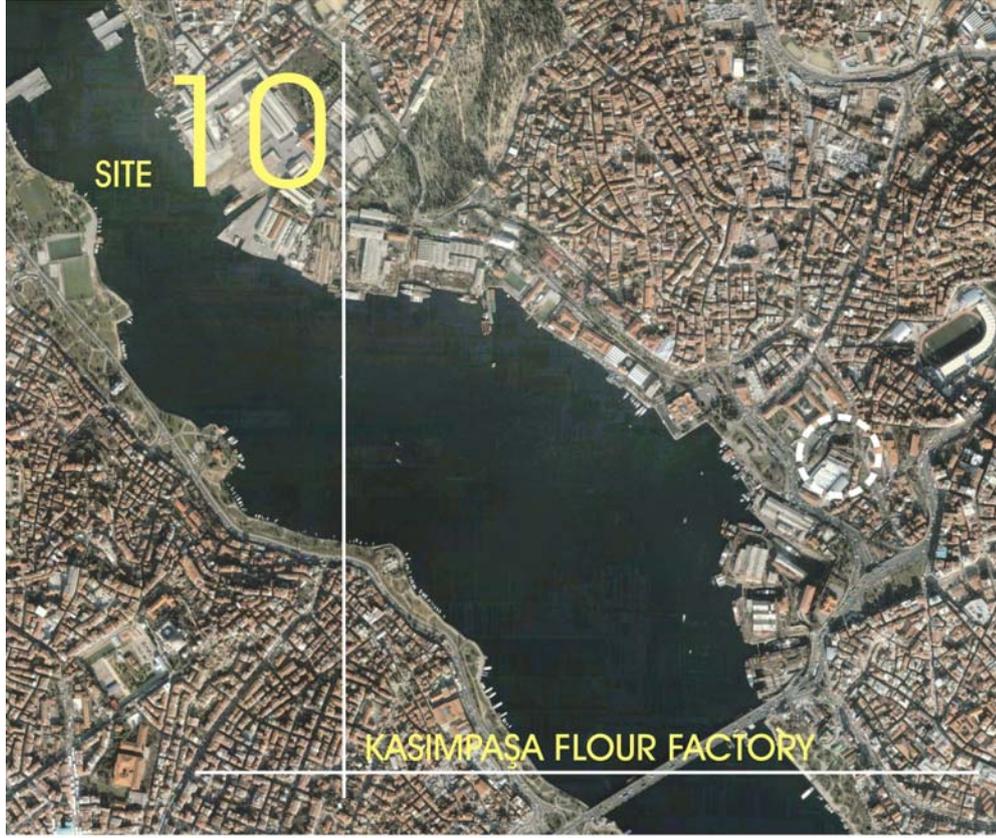
Entrance Gate from Refik Saydam St.– Photo No.05

Haliç Shipyard from Atatürk Bridge – Photo No.06



Figure 5.47. Photos from Haliç Shipyard
(Source: Author's achieve, 2009))

5.5.8 - KASIMPAŞA FLOUR FACTORY



Location:	Kasimpaşa
Year of Establishment:	1886
Ownership:	Pilitas and Sons & Madencidis Brothers (Pilitas Mahdumları ve Madencidis Biraderler)
Original Function:	Flour production
Present Function:	Storage /warehouse
Conservation decree:	It was registered as a cultural asset by Istanbul Conservation Association of Cultural and Natural Properties No.1 with decision
Surface Area:	

Figure 5.48. Info Sheet: Kasimpaşa Flour Factory

Significant Stages in the Technological and Historical Lifespan of the Site

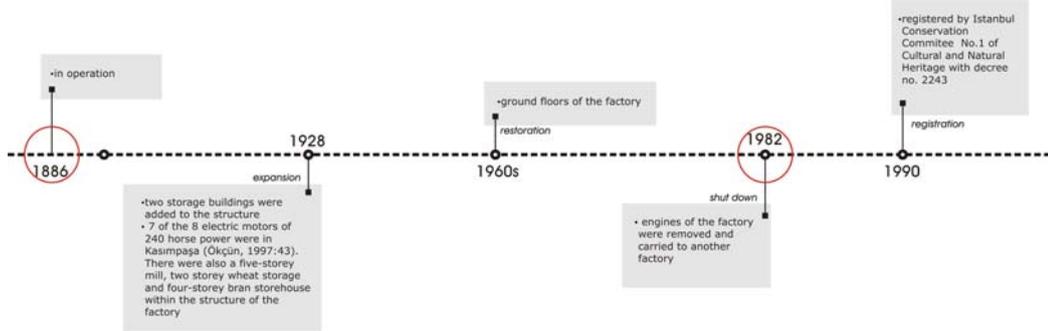


Figure 5.49. Life-Span of the Site

1886- With respect to the archives, the construction permit for the factory was acquired in 12 January 1852; however, there is not any documentation about the completion date of the factory (Ezgeç, 1998:33). With respect to the 1913 industrial counting, the factory was operating in 1886 (Ökçün, 1997:43).

1928- Two storage buildings were added to the structure (Figure D.65). The factory, which operated through steam power, had the greatest equipment power among the mills in Istanbul (Ökçün, 1997:43).

1960s - The ground floors of the factory buildings were replaced with concrete material.

1982- The engines of the factory were removed and carried to another factory (Ezgeç, 1998:33). (Köksal, 2005)

1990- Registered as a cultural heritage by the decree of Istanbul Conservation Association of Cultural and Natural Properties Directorate No.1 with decree no. 2243.

Present State of the Site:

The factory is not functioning and it is severely damaged due to environmental conditions.

10. Kasımpaşa Flour Factory



Salt Store Building – Adjacent to Flour Factory Site – Photo No.01



Kalyoncu Kışlası – Photo No.02



Flour Factory Site, back street – Photo No.03



Kalyoncu Kışlası (left) & Salt Store (right) – Photo No.04

Flour Factory Site, Front – Photo No.05



View from back street – Photo No.06

Public Park in front of Halic Shipyard – Photo No.07



Figure 5.50. Photos from Kasımpaşa Flour Factory
(Source: Author’s archive,2009))

5.5.9 - CIBALI TOBACCO AND CIGARETTE FACTORY / KADİR HAS UNIVERSITY



Location:	Cibali/Fatih
Year of Establishment:	1884
Ownership:	TEKEL
Original Function:	Tobacco processing and production of cigarette and cigar
Present Function:	Kadir Has University
Conservation decree:	It was registered as cultural asset by Istanbul Conservation Association of Cultural and Natural Properties No.1 with decision no. 3618 in 16.09.1997.
Surface Area:	The enterprise was located on an area of 10.385 m ² and had a 40.000 m ² closed area.

Figure 5.51. Info Sheet: Cibali Tobacco and Cigarette Factory

Significant Stages in the Technological and Historical Lifespan of the Site:

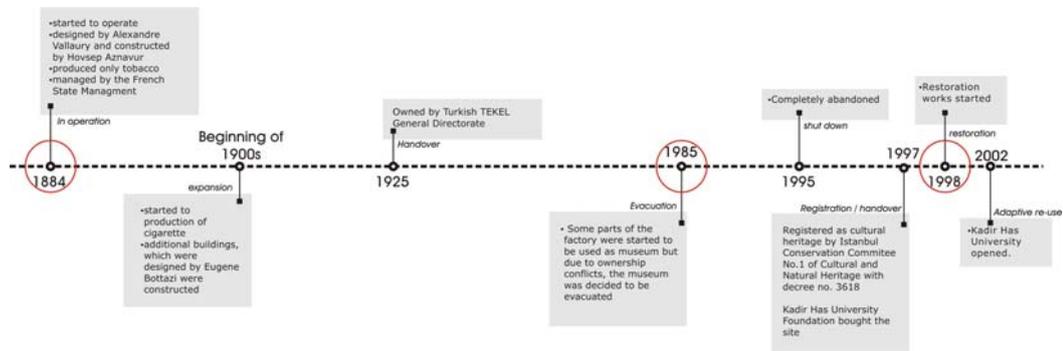


Figure 5.52. Life-Span of the Site

1884 - The factory which started to operate in 1884 was designed by Alexandre Vallauray and constructed by Hovsep Aznavur (Alper, 2004:33). The main building first produced only tobacco but after **1900** also started to production of cigarette (İstanbul, 1994a:429) (Figure D.33).

Early 20th century- The additional buildings, which were designed by Eugene Bottazi were constructed (Alioğlu ve Alper, 1998).

1925 The factory, which was managed by the French State until 1925 was transferred to Turkish Tekel General Directorate (Doğruel, 2000:25-107).

1985 - Some parts of the factory were started to be used as museum in 22 March 1985. However, due to ownership conflicts, the museum was decided to be evacuated (Doğruel, 2000:284).

1995 - The factory, which was used partially until 1995 was abandoned.

1997 - Registered as a cultural heritage by the decree of Istanbul Conservation Association of Cultural and Natural Properties Directorate No.1 with decree no. 3618. The site was bought by Kadir Has University Foundation from the Ministry of Finance.

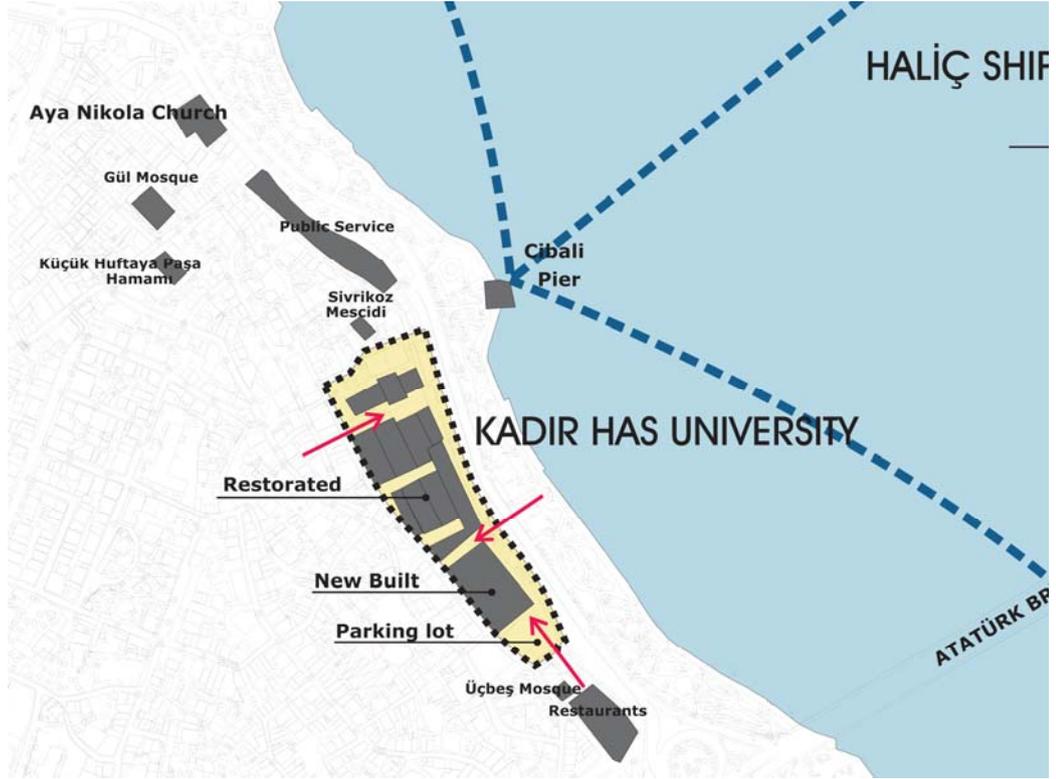
1998 – Restoration works started at site in March 2008 which were consulted by Dr.M.Alper and continued for 4 years.

2002 – Kadir Has University was opened at the site on 30 January 2002. (khas.edu.tr)

Present State of the Site:

Before the restoration works for Kadir Has University, the museum where the factory's products and the information were exposed was moved to the Maltepe Cigarette Factory by Tekel General Directorate. However, following the restoration, the works were not taken to the place they belonged. Today, we cannot have sufficient information pertaining to the equipment and the processing system of the structure, which were in a good condition as seen in a trip made in 1994.

It was Dr. M. Alper who conducted the restoration and adaptive re-use works of the structure. The wooden structural system of the building was replaced by steel. The parts that were constructed in late 19th and early 20th centuries were used just as the way they were. However, certain structures that were constructed later on after 1950 and the extra four floor added to the original structure were demolished (Alioğlu and Alper, 1998:48) (Köksal,2005).



OPPORTUNITIES

1. View of Tersane-i Amire
2. Being close to Cibali Pier
3. Rebuilt, restored and new built buildings on the site
4. Being close to the Fortification Wall and Tersane-i Amire
5. Green public spaces around the site
6. Being on the strong transportation routes

CONSTRAINTS

1. Being surrounded by the walls
2. Not being on the edge of Halic
3. Not being on the pedestrian routes
4. Weak relation with its surrounding

Figure 5.53. Opportunities/Constraints – Kadir Has University



Figure 5.54. Photos from Cibali Tobacco Factory/Kadir Has University
(Source: Author's archive, 2009)

5.6 .Evaluation of the Transformation Processes and the Current Context

Through the spatial, social and economic transformation of Istanbul, the Golden Horn have always been in the focus of local/central authorities and private entrepreneurs. Its geographical location; cultural/historical/social diversity and central role in the urban economy contributed to the significance of the Golden Horn. Under the globalization effects, the industrial sites along the Golden Horn, owing to its historical identity and development potential, became the focus of various projects with a claim of a new image for the Golden Horn. However, the synergy between these projects and their effects on the historical continuity of the Golden Horn is open to discussion.

In the Golden Horn each industrial/postindustrial site demonstrates a different context of transformation process. Three basic character types can be defined:

A. The **Nonextant** industrial structures/sites in the Golden Horn ⁷

1. Şahbaz Agiya Mahtunları Brick Factory

B. Industrial Sites which have been *transformed* for other functions through different *types of interventions* (*adaptive reuse, reconstruction, rehabilitation, integrated infill etc.*)

1. Silahtarağa Power Plant

2. Sütlüce Slaughterhouse

3. Feshane Fabrika-ı Hümayunu (Feshane-i Amire)

4. Lengerhane-i Amire

5. Hasköy Shipyard (Şirket-i Hayriye)

6. Cibali Tobacco and Cigarette Factory

⁷ In the nineteenth century, there were 256 industrial buildings in Istanbul, but today only 43 survive. The brick factory (which was demolished in 2003) is selected as an example of this category. İplikhane-i Âmire (Riştahane-i Âmire) was another significant example which was established in 1827 in Eyüp and vanished in the late 19th century.

C. Industrial Sites which are facing with different ranges and level of *obsolescence*

Golden Horn Shipyards

1. Taşkızak Shipyard
1. Camialtı Shipyard
3. Haliç Shipyard
4. Kasımpaşa Flour Factory



Figure 5.55. Change of Functions and Ownership

Vanishing of the Şahbaz Agiyan Brick Factory is a very common fate among many industrial sites in Turkey. It is demonstrating the negative impacts of *deindustrialization* and the pressures of rapid changing nature of *urban dynamics*: the shift from production to consumption; decentralization of industry; strict zoning regulations; segregation of industry from social, economic, cultural life of the urban fabric; highly speculative land market, mediation of local politics through building rights and maximum exploitation.

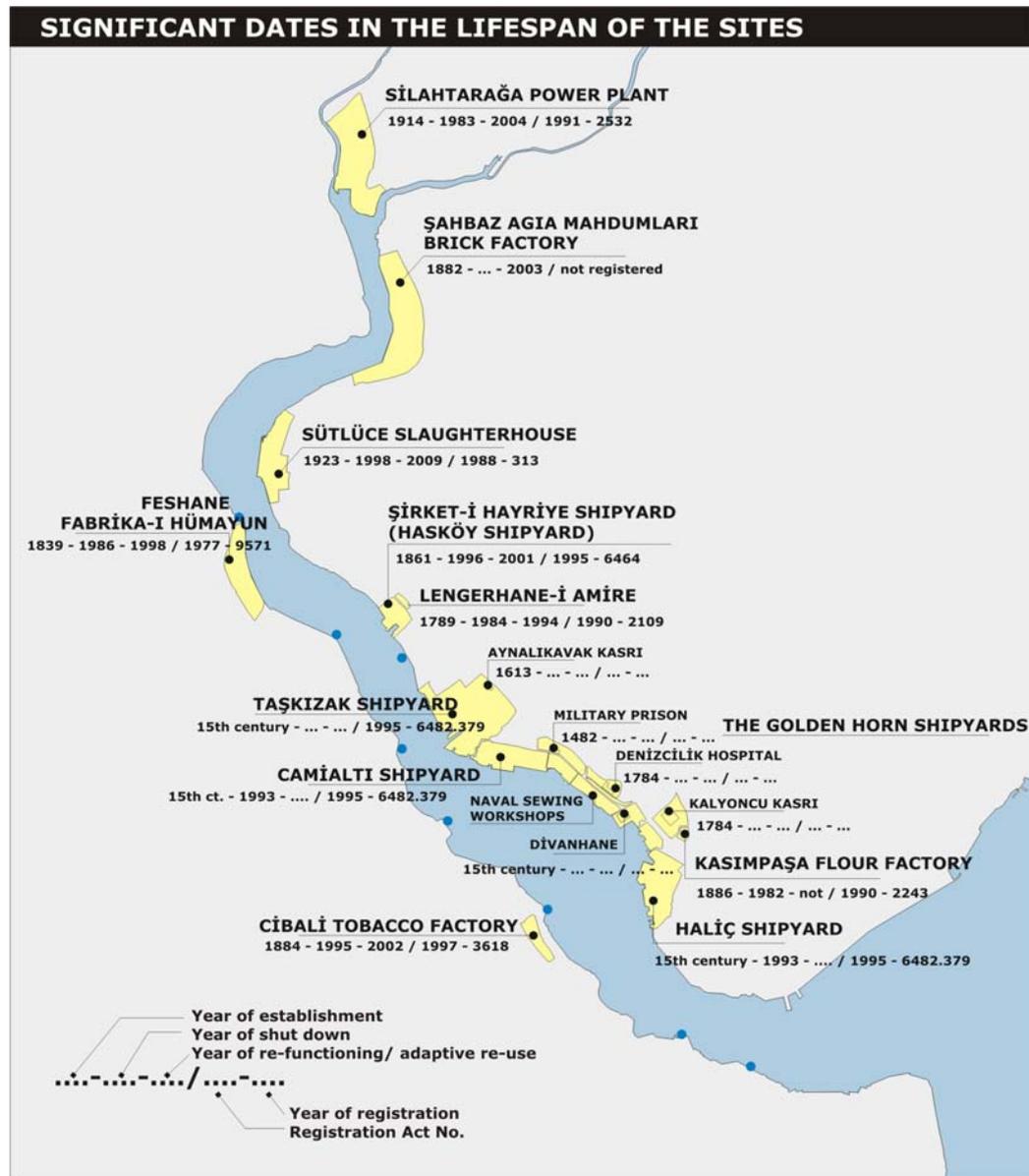


Figure 5.56. Significant Dates in the Lifespan of the Sites

By considering the industrial sites which have been transformed for other functions we can distinguish the complex problems and constraints in the project initiation, implementation, occupation and management phases. These stages of intervention are important to identify the attitude of conservation, and tools of intervention. The breaking points in the life span of the industrial sites also show the nature of policy framework and the role of structural and agency factors.

In Turkey, the dynamics and reasons behind the obsolescence of industrial sites is different than those in many western European Countries. In Turkey, there is a conscious policy framework, which results with the obsolescence of industrial sites. The Golden Horn Shipyards is the most significant example of this situation. Considering the development pressures and economic rent demands, it is crucial to develop strategies that can protect and enhance the invaluable unique heritage significance of the site.

To sum up the different character types and the transformation processes in the Golden Horn help us understand:

- the diversity and variety of the problems,
- the lack of strategic approaches, and
- the inadequate mechanisms and tools of intervention.

The transformation process of each site can be analyzed in a more detailed way. In this study, rather than an examination of a specific site, the aim is to formulate an integrated framework. To cope with the complex nature of the problematic in the Golden Horn, hence in Turkey. The **necessity for an integrated approach** can be **justified** when we consider the:

1. The changing nature of urban dynamics
2. Complex impacts of deindustrialization
3. Decentralization of industry; strict zoning regulations; segregation of industry from the everyday life, public realm and social fabric of the city;

the shift from production to consumption and their impacts on the urban social economic conditions.

4. The multi-layer values of industrial heritage.
5. The diversity of the problems caused by the obsolescence.
6. The varied potentials/benefits/opportunities/advantages of PIOSS in the urban context
7. Strategic approaches with different motives/prospects and tools of intervention

5.7. An Integrated Approach for the Industrial Beings along the Golden Horn

The Golden Horn could be evaluated within an *integrative waterfront industrial heritage program* so as to be enhanced as a significant *historical water channel*. The peculiarity of the problematic in Turkey and the unique location of the Golden Horn necessitate formulation of such an integrated and area based approach. In this manner by developing an integrated approach new frameworks and strategies can be formulated to protect, reclaim, and enhance industrial heritage.

The integrated approach can help to develop a combination of different strategic approaches for the Golden Horn. A combination of urban-cultural strategies, heritage tourism strategies, urban catalyst/nucleus strategies, brownfield redevelopment strategies, and conservation led regeneration strategies can help to resolve at least some of the controversial problems that obsolete industrial sites encounter. This approach is necessary to manage and regulate the clash of values/tensions and conflicts in the Golden Horn.

Until now, in order to develop an integrated framework, the thesis discussed *conceptual basics of the issue* and the *contextual characteristics* of the Golden Horn. This knowledge can provide a basis for the determination of key elements of an integrated approach which are:

- Inventory and evaluation studies
- Industrial character/significance assessment studies
- Identification of present and future constraints/opportunities
- Specification of strategic approaches and tools of intervention
- Construction of an analytical framework which can be practical for the intervention and management processes.

By this way a dual-nature integrated approach could be developed. The first stage considers the issues pertaining to the value and preservation of the industrial heritage and the second one focuses on the intervention processes. The multi-layer values of the PIOSS, offers many opportunities in the **urban context**. For this reason the **justification** to protect and reclaim PIOSS should be based on diverse criteria. In order to build the relationship between the two stages, it is important to **integrate** the multi-layer values of the industrial heritage with the opportunities it offers in the revitalization context of the Golden Horn.

The contextual (social, economic, spatial, structural, morphological and architectural) implications and particular characteristics of the PIOSS should be taken into consideration in the scope of the strategic approaches and intervention processes.

To sum up an integrated approach can be used as a methodological and instrumental framework to be able to answer the three basic questions

1. What to Preserve/Conserve/Revitalize? (see section 2.3)
2. Why to Preserve/Conserve/Revitalize? (see section 2.4)
3. How to Preserve/Conserve/Revitalize? (see chapter 3 and 4)

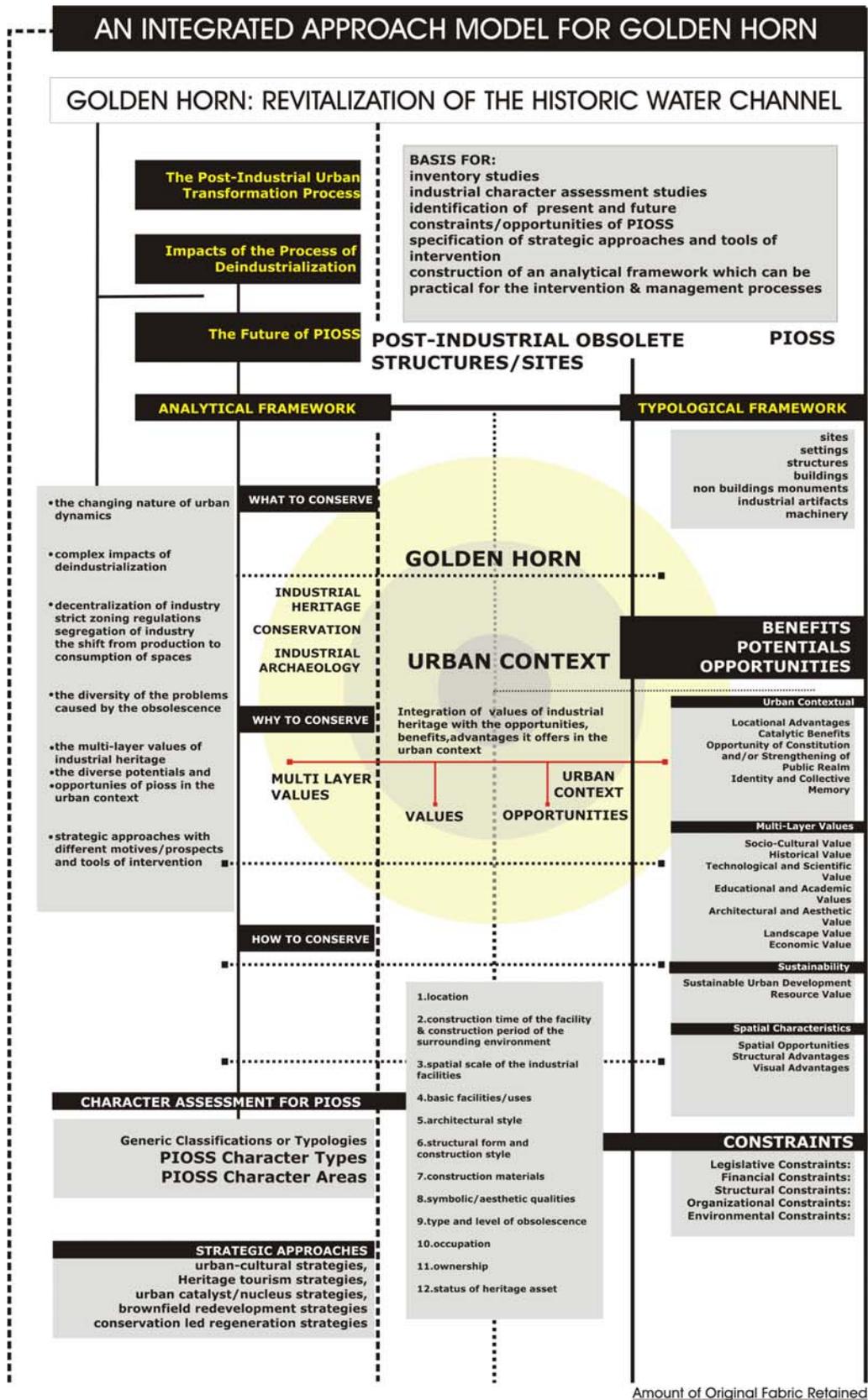


Figure 5.57. Integrated Approach Algorithm 1/4

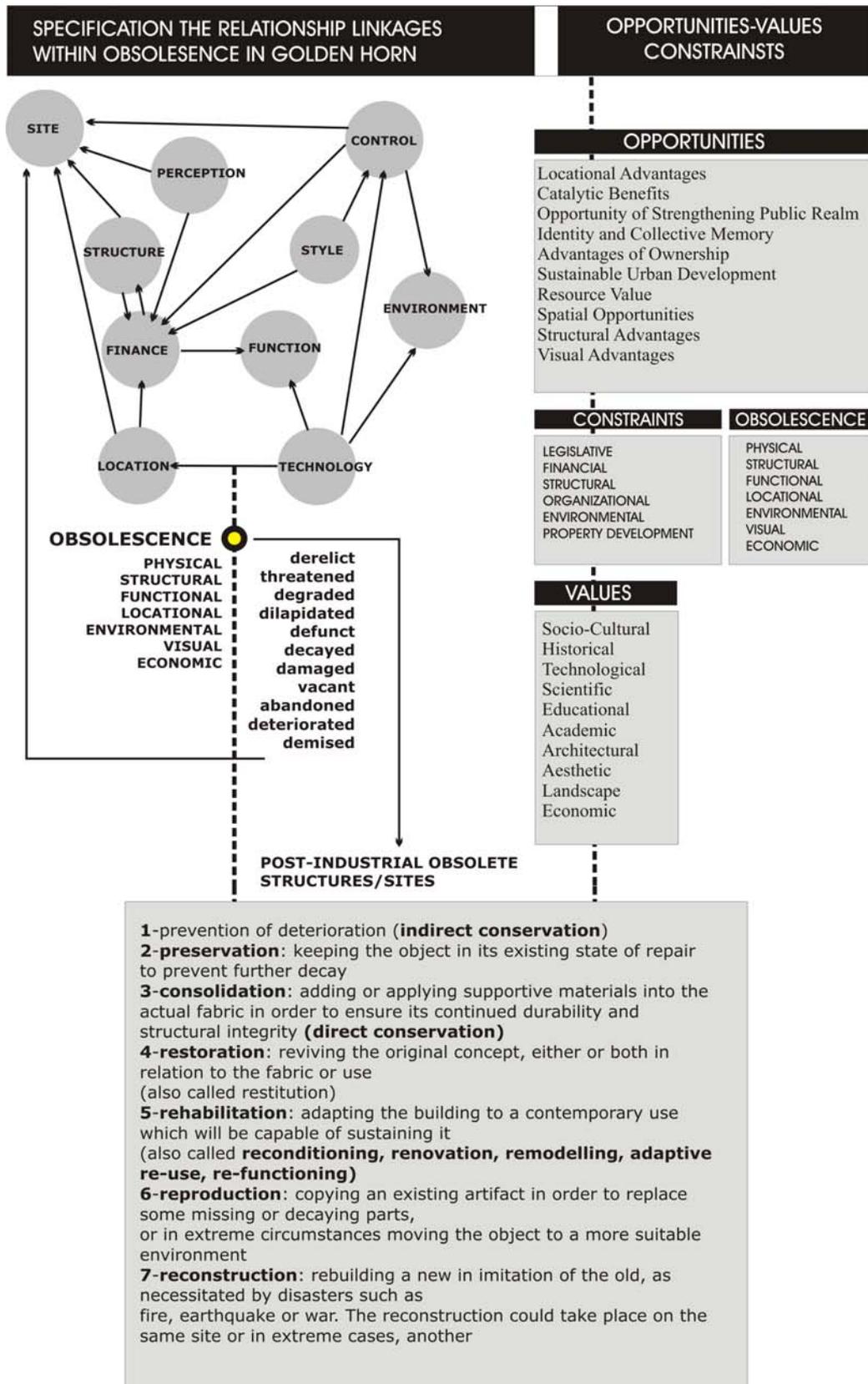


Figure 5.58. Integrated Approach Algorithm 2/4

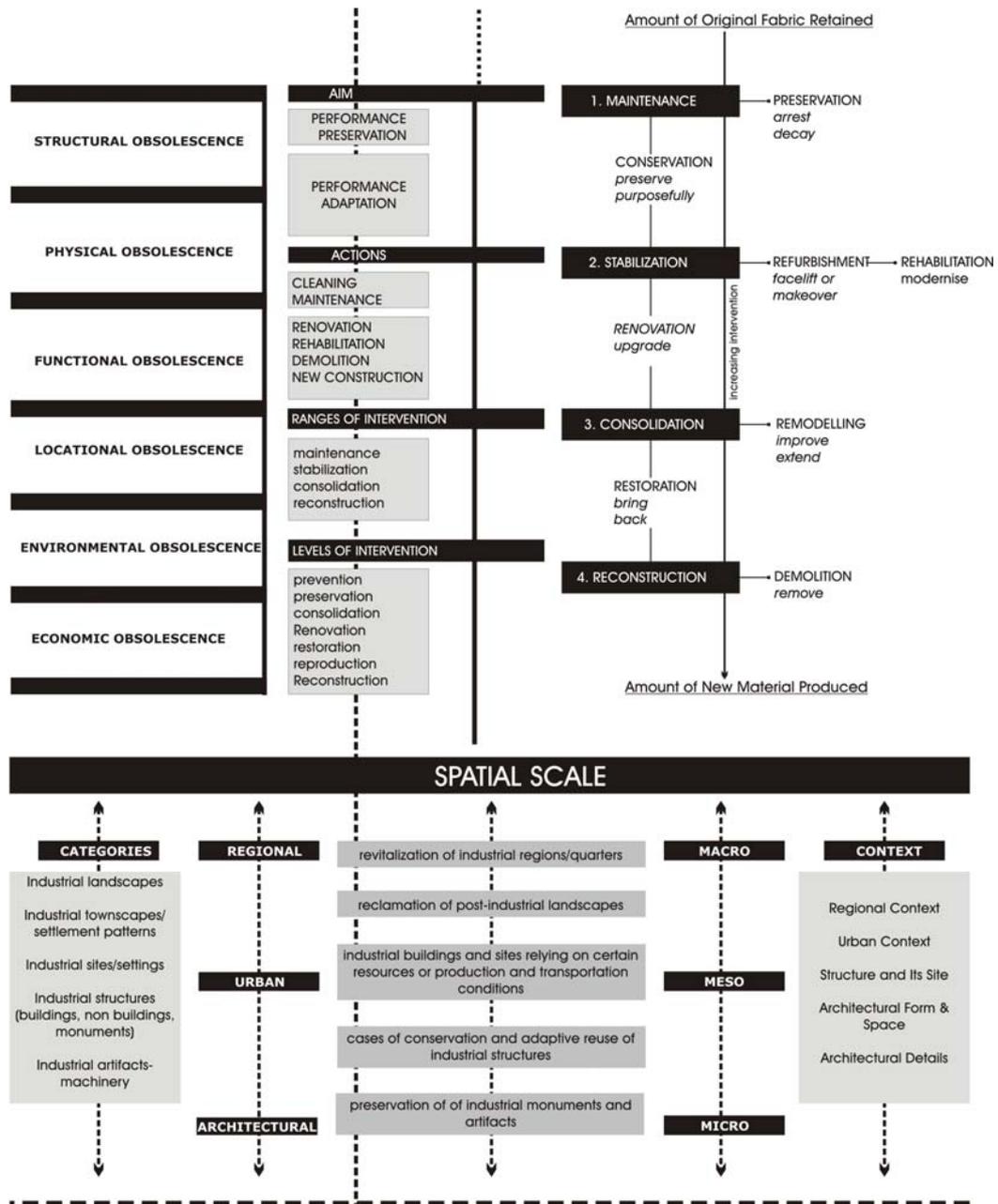


Figure 5.59. Integrated Approach Algorithm 3/4

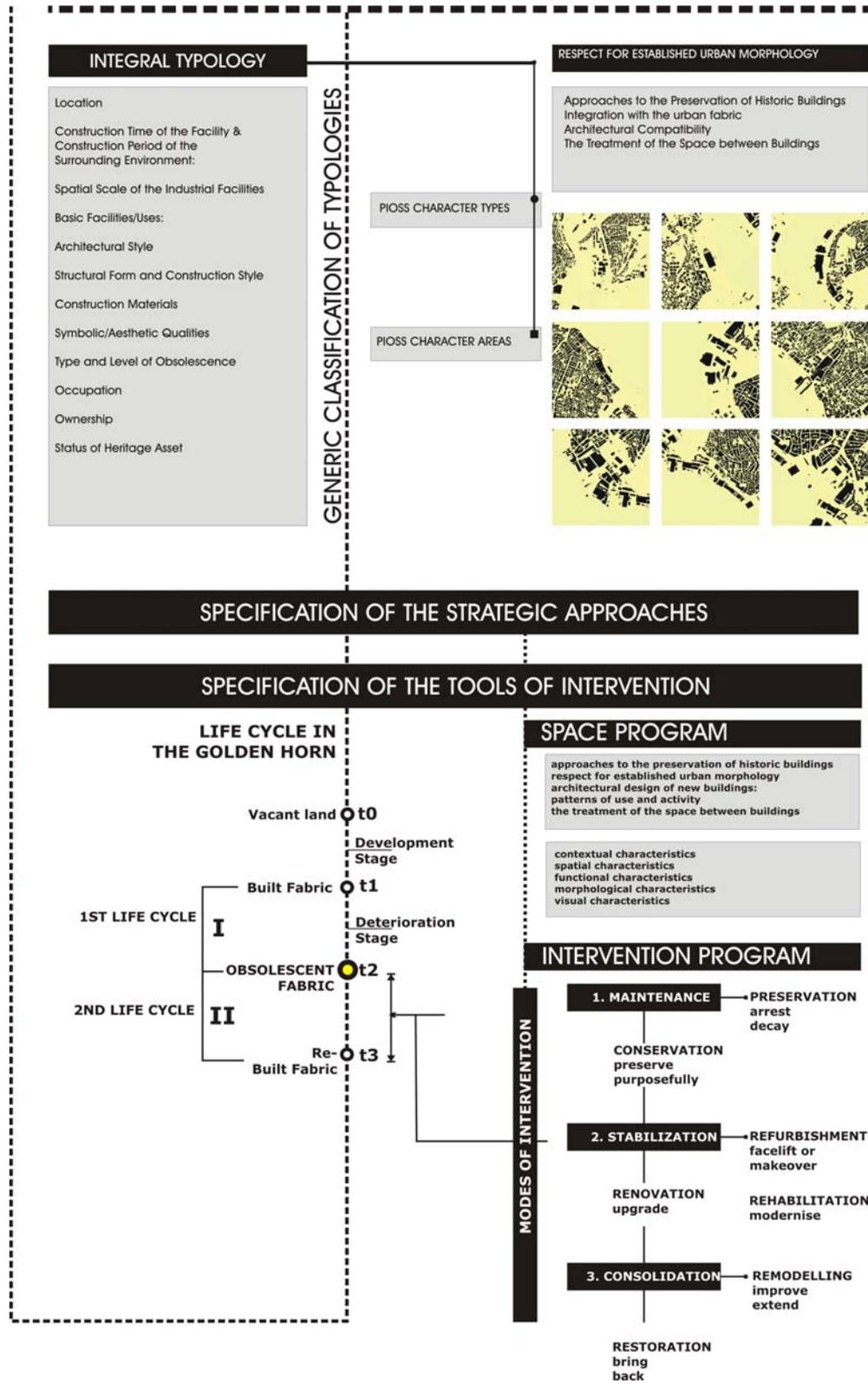


Figure 5.60. Integrated Approach Algorithm 4/4

CHAPTER 6

CONCLUSION

In the planning literature the issue of sustaining industrial beings arise a series of discussions since it has a major influence on the planning and restructuring of the urban space. The future of industrial sites (factories, manufacturing plants, shipyards etc.) that have reached the end of their productive life and form physically degraded, environmentally disturbed and sometimes chemically contaminated space is a priority in the agenda of cities. Obsolete industrial sites present a wasted potential of the built environment. They are often acting as a major constraint on economic regeneration. While leaving them vacant is unsustainable for quite a number of environmental, economic and social reasons, sustaining industrial beings can make positive contributions in this respect.

The need and challenge of sustaining *industrial beings* is a recent phenomenon. Hence the approaches in this regard are not yet profoundly defined to manage the protection and restoration of those beings. In this respect, this thesis searches for an *integrated approach* for sustaining industrial structures, sites, and landscapes which are typically significant for their heritage value in the *urban context*. To develop a thematically consolidated integrated framework, the study investigated ‘*conceptual*’, ‘*typological*’, ‘*analytical*’, and ‘*operational*’ basis of the subject matter. This is maintained by scrutinizing the practicalities of the (western) countries that have already formulated advanced policies.

The *conceptual basis* of the issue is revealed by examining the changing urban dynamics; the debate over ‘*continuity*’ versus ‘*change*’; main *value typologies* of

the *heritage* resources and the process of *obsolescence* in the life-span of industrial beings. Taxonomy for the structures and spaces that constitute the object matter of the thesis formed the basis of an *integral typology*. This is supported by the specification of the characteristics of industrial beings and the opportunities they offer in the urban context. Correspondingly, *strategic approaches* and modes of intervention relevant for the different types of industrial beings are examined. The study exposed the **analytical framework** by assessing industrial beings according to *diversity of functions, basic change of use, spatial scale of the projects, types of intervention* and *the design approaches*.

The *scope* of the issue in Turkey is revealed by identifying the present policy framework in accordance with the legislative and instrumental measures. This is complemented by an *inventory* for the significant industrial heritage sites. The findings demonstrated the particularity of the problematic in Turkey; the distinctive factors behind the emergence of obsolescence; the extremely divergent attitudes to and interests in obsolete industrial beings, as well as the complexity of the industrial sites.

As a final task, the application(s) for the industrial sites along *The Golden Horn* were investigated. The Golden Horn case has also confirmed that such an integrated approach is required to protect and enhance industrial beings.

As a conclusive remark, in this section the basic components of an integrated program considering the sites in the urban context and as problem areas of urban design will be specified.

The spine of the integrated framework is constituted by the definitions of three key questions

1. What to Protect/Preserve/Conserve/Sustain?

2. Why to Protect/Preserve/Conserve/Sustain?
3. How to Protect/Preserve/Conserve/Sustain

The answer to the question of “**what to**” is acknowledged with the studies started especially with the emergence of industrial archaeology in the 1950s. Since this period, significant efforts have been developed in order to define the **meaning** and the **scope** of the industrial heritage, establishing chronologic **parameters** and performing several studies, with the objective to define “what to” preserve.

On the other hand the definitions of “**why to**” and “**how to**” are more complex and can sometimes be *dissimilar or conflicting*. Actually the necessity of an integrated framework comes from this tension. The debate over **continuity versus change**; development versus preservation; re-use versus rebuild is a controversial matter along with urban transformation, sustainability and heritage management (in its various social, economic, spatial and architectural forms). These tensions and clash of values sometimes form unusual **juxtapositions** in the urban space like: old lies next to new; new adapts old; new uses old in new ways or new ignores old

Actually it is the nature and scale of this conflict which are major problems, remaining unresolved in theory. Hence there is no generally accepted theory of how to manage built environment for continuity and change; for development and preservation. Although the common depiction of tension as a simple dichotomy of “preserve” or “redevelop” is a gross over simplification, the (re)production of urban space is a process in which conflicting ideologies are deeply embedded.

The definition to the question “*why to*” is directly related with the value of the industrial legacy. Thus, the concept of *value* has been increasingly located at the heart of theoretical discourses on **heritage** and has become a central argument in its **conservation** process. A diverse set of value **typologies** are defined in the literature.

For the purpose of this study, the **justification** to protect and reclaim **post-industrial obsolete structures/sites (PIOSS)** should be based on **diverse** criteria. Based on this assumption the values of industrial heritage which offers many **opportunities** for the cities are specified. By this way the multi-layer values of industrial beings are integrated with the opportunities, advantages, potentials, benefits it presents in the urban context:

OPPORTUNITIES	VALUES
Locational Advantages Catalytic Benefits Opportunity of Strengthening Public Realm Identity and Collective Memory Advantages of Ownership Sustainable Urban Development Resource Value Spatial Opportunities Structural Advantages Visual Advantages	Socio-Cultural Historical Technological Scientific Educational Academic Architectural Aesthetic Landscape Economic

Figure 6.1. Values of Industrial Beings and Opportunities in the Urban Context

On this basis the thematic concerns and elements of integrated framework is specified and discussed in order to identify the question of **how to**. In this respect a **typological** and **analytical** framework is formulated to define the components of the integrated framework: The inter-cross relationship among the key elements was also crucial for the constitution of a **thematically consolidated** study subject.

Components and Thematic Concerns of the Integrated Framework:

1. Values and Opportunities: The values of the industrial heritage are integrated with the opportunities it offers in the urban context. This would provide a basis for the concerns of integrated conservation and **area based interventions**. In this manner two clusters are defined. The first one is the **multi-layer values** of the industrial legacy and the second cluster is the **urban contextual opportunities**.

2. Obsolescence and Constraints: The constraints of the PIOSS are defined in relation with the process of obsolescence.

CONSTRAINTS	OBSOLESCENCE
LEGISLATIVE FINANCIAL STRUCTURAL ORGANIZATIONAL ENVIRONMENTAL PROPERTY DEVELOPMENT	PHYSICAL STRUCTURAL FUNCTIONAL LOCATIONAL ENVIRONMENTAL VISUAL ECONOMIC

Figure 6.2. Types of Obsolescence and Constraints to Sustain Industrial Industrial Beings

4. Spatial Scale and Types of Industrial Beings: Strategic approaches can be specified according to **scale** and **character** of the site. In this sense **area based approaches** and **sectoral approaches** are complementary.

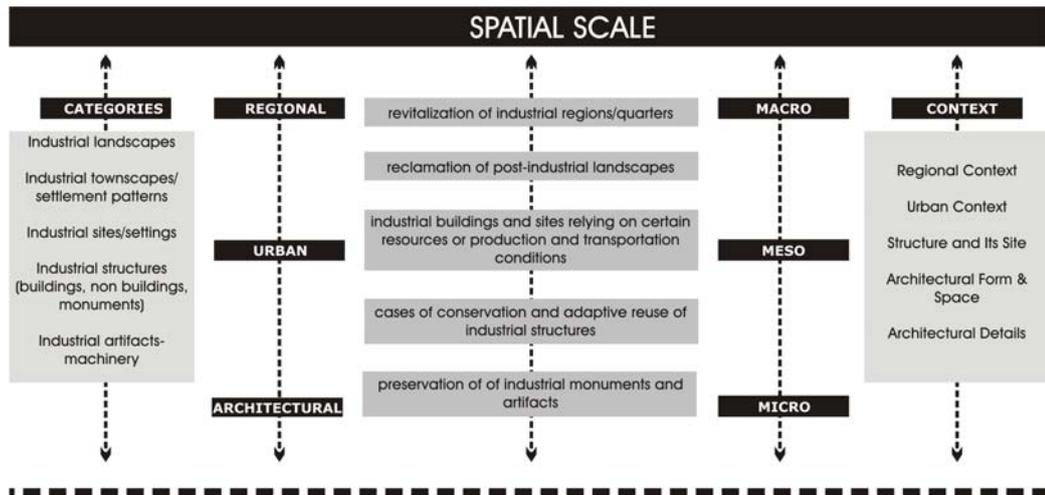


Figure 6.3. Spatial Scale and Types of Industrial Beings

4. Integral Typology and Modes of Intervention: Formulation of an **integral typology** is considered to be necessary both from theoretical and practical points of view. The main idea is that the character and significance of PIOSS determine the specific methods of **assessment, evaluation, intervention and management**. Character/Significance of PIOSS can be defined as a distinct and consistent pattern of elements that makes one building/ structure / site /landscape different from another. The character/significance of PIOSS depends on the combination of the categories of the typology. Hence it can be seen as an expression of the way in which *social, cultural, historical, contextual, spatial, functional, morphological, visual and constructional* characteristics of PIOSS are combined

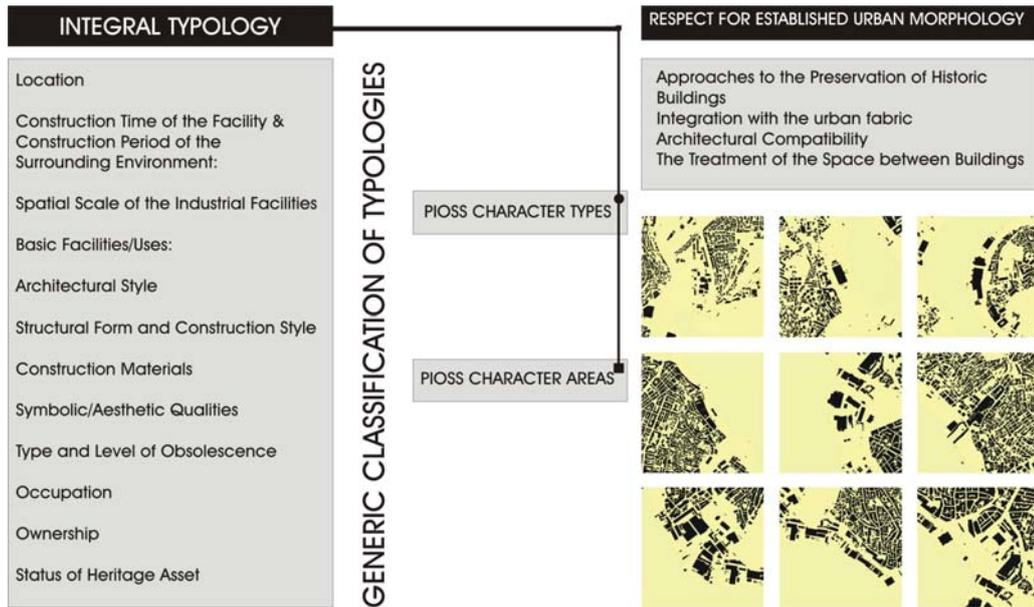


Figure 6.4. Integral Typology and Thematic Concerns of Intervention

5. Types of Obsolescence and Level of Intervention: Here the simple idea was that different types and levels of obsolescence may necessitate different modes of intervention. Therefore their integration is necessary

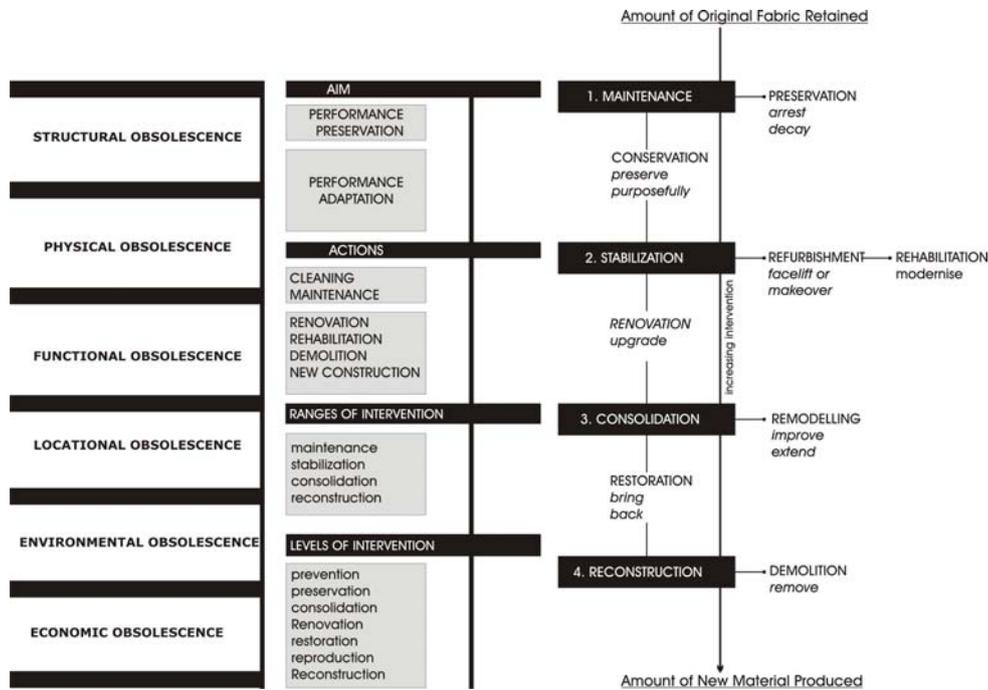


Figure 6.5. Types of Obsolescence and Level of Intervention

Critical Remarks for the state of Industrial Beings in Turkey and the Golden Horn:

In Turkey, the actual lifespan of the industrial beings are shorter than many Western Countries due to multi-originated problems and threats. PIOSS are interpreted as the deteriorated faces of the built -environment and sources of high-rent values. The capital accumulation processes based on urban rent speculation, irresponsible public authorities, deindustrialization and decentralization policies have been one of the major dynamics behind the vanishing of industrial heritage. Furthermore, during the last few decades, abandonment, sale, or demolition of

industrial beings were fairly common approaches. This situation have been triggered the obsolescence and disappearance of significant industrial structures and sites.

The undervaluation of the industrial structures when compared to other architectural and cultural heritage categories; high-rent values; high-cost expenditures required for the conservation and reuse implementations; the assignment of improper functions; and the construction of additional structures without respecting the particular characteristics of the old structures fasten the deterioration process.

The development and legalization of new concepts and criterion so as to involve the particularities of the industrial heritage should be considered in order to contribute to the efficiency of the registration and intervention processes.

Various meanings of the definitions and the concepts that are used in the international arena should be re-considered and adapted. We have to adjust these meanings in our legal and planning framework through considering the particular urban fabric and typologies of Turkey.

Concerning the legal conservation of industrial beings, the practical and theoretical contexts do not operate in an integrative way. The development of an effective theoretical background for the conservation of the industrial heritage sites in Turkey necessitates the thorough evaluation of the headings of the conservation and the clarification of the problems. Moreover, In Turkey, for the protection and enhancement of industrial heritage, there are two major barriers. First of all, **how to** approach PIOSS with heritage significance have not been profoundly defined in terms of its **conceptual, typological and intervention dimensions**. Secondly, the processes of urbanization, industrialization and deindustrialization show a different character than the western/european countries and cities. As a consequence, the industrial structures are confronted with a bundle of *particular* problems and threats preventing their *existence* and

survival. There is a *conscious destruction* of the industrial structures or an *indirect authorization* of the *demolition processes* which not only result with the *vanishing* of the *industrial heritage* sites but also cause many *multi-dimensional problems* for the *social, economic and cultural life of the cities*. It is unacceptable that these sites are **destroyed or damaged** with inappropriate intervention policies .

PIOSS along the Golden Horn is a typical example of these concerns. Golden Horn, owing to its historical identity and development potential, became the focus of various projects with a claim of a new image. However, the synergy between these projects and their effects on the historical continuity of the industrial heritage sites is open to discussion.

In these circumstances, the integrated approach can help to develop a combination of different strategic approaches for the Golden Horn. A combination of urban-cultural strategies, heritage tourism strategies, urban catalyst/nucleus strategies, brownfield redevelopment strategies, and conservation led regeneration strategies can help to resolve at least some of the controversial problems that obsolete industrial sites encounter. This approach is necessary to manage and regulate the **clash of values/tensions and conflicts** in the Golden Horn.

The profound understanding of the site, the promotion of the industrial heritage and the allocation of resources are the essential stages for the preservation of industrial beings. In this line, the poorly recognized aspect of the industrial heritage should be revealed.

In the Golden Horn, urban design can be one of the basic instruments to confront obsolescence, sustain industrial beings, and integrate them with the urban fabric. This integration can be achieved by:

1. Amelioration and reuse of abandoned networks and their incorporation to the public transport system to enhance social cohesion.
2. Restoration and reuse of industrial heritage.
3. Associating new working places to the renovation of old industrial sites.
4. Recuperation of traditional activities linked to the territories in decline.
5. Redevelopment projects for deteriorated industrial neighborhoods linked to industrial sites.
6. Constitution of the Spatial, Functional and Visual Integration of the Industrial beings with each other and the urban fabric

In this respect, first of all industrial beings along the Golden Horn should be integrated with its surrounding environment and with each other. Secondly, their vertical and horizontal integration with water channel should be achieved. Third of all, relative strategies should be developed so as to increase the quality of social and cultural life; and to stimulate the economic structure. Finally, the industrial beings should be considered not as individual structures but within a comprehensive context in order to improve the physical conditions of the urban space.

Furthermore urban design can be used as a tool to assist the process of intervention; to establish the guidelines to sustain industrial beings, and to provide consistency between old and new both for the structures and the urban fabric.

Future Research and Policy Recommendations:

A significant number of industrial structures/sites disappeared due to the lack of systematic studies. Today, there is an urgent need to multiply the studies on this issue so as to reduce the potential damages and to ensure the survival of the industrial legacy, which reflect the typology of a certain era.

Moreover, there is a requirement to accomplish an in-depth study of the components of the integrated framework both from theoretical and practical perspectives. This work can be done on different case studies representing different categories of industrial beings.

There are also questions about the broader meaning of the industrial beings which can be analyzed from the viewpoints of different disciplines:

- continuity and change;
- the international context of industrialization;
- production and consumption;
- understanding the workplace;
- industrial settlement patterns;
- class status and identity;
- the use of urban and architectural analysis in understanding the significance of industrial beings can be given as major fields of future studies.

In Turkey, various meanings, values, approaches, strategies and tools that are used in the international arena should be re-considered and adapted. We have to adjust these meanings in our legal and planning framework through considering the particular urban fabric and industrial typologies of Turkey. There are certain concepts that are developed beyond our context, we, however, have to redefine these concepts by considering the particularities of Turkey.

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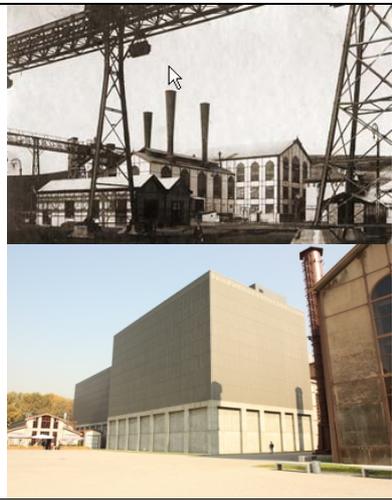
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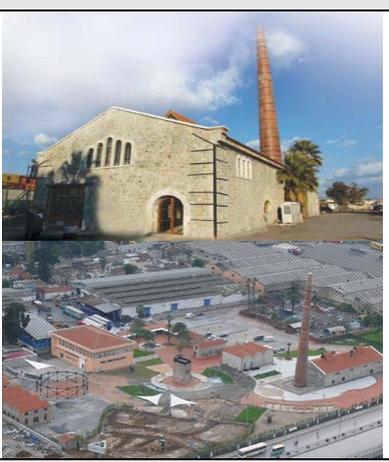
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APPENDIX 1

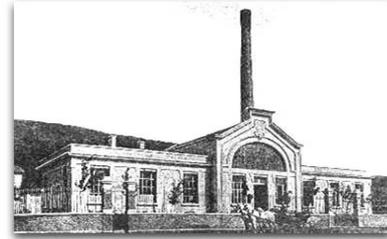
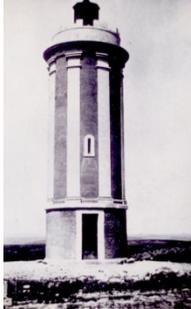
SIGNIFICANT INDUSTRIAL STRUCTURES & SITES FROM TURKEY

A. LATE OTTOMAN PERIOD:

No .	Name of Structure/Site	Industry Type	Foundation Year	Location	Current Use/Status	View From Site
1	Silahtarağa Elektrik Fabrikası	Energy	1913	Kağıthane, İstanbul	Adaptive reuse as cultural & art center Santralistanbul	
2	Üsküdar Elektrik Fabrikası	Energy	Early 20th Century	Bağlarbaşı, İstanbul	Not-functioning. Poor condition.	
3	Hasanpaşa Gazhanesi	Energy	1891	Kadıköy, İstanbul	Not-functioning. Very poor condition. Plans and studies by Municipality and NGOs ongoing for the adaptive reuse of the site as cultural center.	

4	Yedikule Gazhanesi	Energy	1880	Yedikule, İstanbul	Not-functioning. Very poor condition.	
5	Dolmabahçe Gazhanesi	Energy	1854	Beşiktaş, İstanbul	Not-functioning. Very poor condition. Municipality plans for adaptive reuse of the site as a cultural centre.	
6	Nakkaştepe Gazhanesi	Energy	1864	Kuzguncuk, İstanbul	Adaptive reuse as "Mülkiye Cultural & Social Center" Restoration and construction works on-going	
7	İzmir Havagazı Fabrikası	Energy	1902	İzmir	Adaptive reuse studies completed by the municipality and the site functions as cultural and art centre today.	

8	Cibali Tütün ve Sigara Fabrikası	Tobacco Products	1884	Cibali, İstanbul	Adaptive reuse as "Kadir Has University".	 
9	Samsun Tekel Tütün İşletme ve Sigara Fabrikası Yerleşkesi	Tobacco Products	1887	Samsun	Not functioning. Restoration works on-going for adaptive reuse of the site as a Tourism & Trade Centre.	
10	Akçaabat Tekel Fabrikası Yerleşkesi	Tobacco Products	1915	Akçaabat, Trabzon	Adaptive reuse as Karadeniz Technical University campus building.	
11	İzmir, Alsancak Tekel Sigara Fabrikası	Tobacco Products	1881	Alsancak, İzmir	Not functioning. Adaptive reuse studies at planning stage.	
12	Taksim Su Tesisi	Infrastructure Water	1732	Taksim, İstanbul	Not-functioning Good condition	

13	Terkos Su Pompa İstasyonu	Infrastructure Water	1883	Terkos İstanbul	Not-functioning. Poor condition. Municipality planning to reuse as water museum.	
14	Cendere Su Pompa İstasyonu	Infrastructure Water	1902	Maslak, İstanbul	Not-functioning. Poor condition. Restoration works on-going to reuse as water museum.	 
15	Hamidiye Su Terazisi	Infrastructure Water	Before 1900	Maslak, İstanbul	Not-functioning. Poor condition.	
16	İzmir Halkapınar Su Fabrikası	Infrastructure Water	1895	Halkapınar, İzmir	Pump station partially used. Restoration studies on-going for adaptive reuse as museum-factory.	
17	Tersane-i Âmire (Haliç, Camialtı ve Taşkızak Tersaneleri)	Shipyards/ Iron Metal Products	15-19th Century	Between Haliç-Hasköy İstanbul	Partially functioning. Poor condition.	

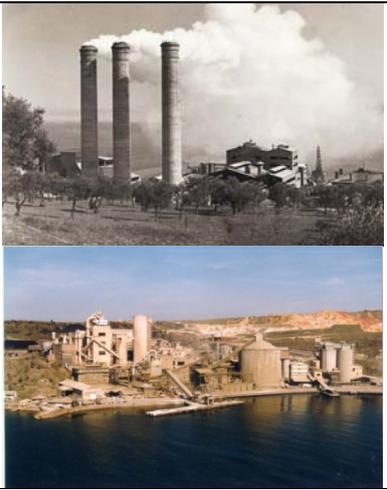
						
18	Şirket-i Hayriye Tersanesi	Shipyard	1861	Hasköy, İstanbul	Adaptive reuse as Rahmi Koç Industry Museum..	
19	Bomonti Bira Fabrikası	Food Products Beverage	1902	Şişli İstanbul	Not functioning since 1991. Poor condition. Privatization completed in 2006. Owner plans to reuse as hotel, congress and cultural complex.	
20	Kasımpaşa Un Fabrikası	Food Products	1886	Kasımpaşa, İstanbul	Not-functioning. Very poor condition.	
21	Paşalimanı Un Fabrikası	Food Products	1863	Üsküdar, İstanbul	Not functioning. Mostly demolished.	
22	Unkapanı Un Fabrikası	Food Products	1866	Unkapanı, İstanbul	Not-functioning. Mostly demolished	

23	Sütlüce Mezbahası	Food Products	1919-1923	Sütlüce, İstanbul	Adaptive reuse as Sütlüce Fair, Congress and Cultural Centre.	 
24	İzmir Un Fabrikası	Food Products	Late 1800s	İzmir	Not functioning. Restoration studies ongoing for adaptive reuse as municipality administrative building.	 <p>Fabrique de Farine de la Municipalité بندیراوند خابریق کس</p> 
25	Feshane Fabrika-i Hümayunu	Textile Products	1833	Defterdar, İstanbul	Adaptive reuse as fair, congress and cultural centre.	 
26	Bakırköy Bez Fabrikası	Textile Products	1850	Bakırköy, İstanbul	Not-functioning. Poor condition.	

27	Beykoz Dikimhane	Textile Products	19th Century	Beykoz, İstanbul	Not-functioning. Mostly destroyed..	
28	Beykoz Deri ve Kundura Fabrikası	Textile Products	1810	Beykoz, İstanbul	Not-functioning. Poor condition. Used as movie set.	
29	Korse Fabrikası	Textile Products	19th Century	Fatih, İstanbul	Fully functioning. Original buildings were replaced or renovated.	
30	Hereke Fabrika-i Hümayunu	Textile Products	1845	Hereke, Kocaeli	Functions as museum-factory	

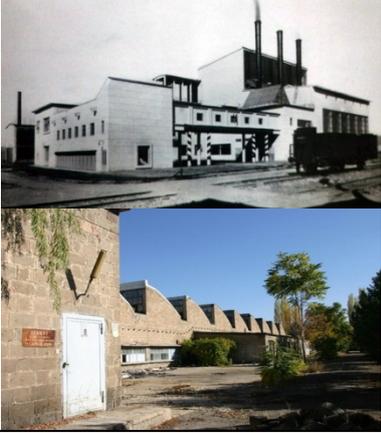
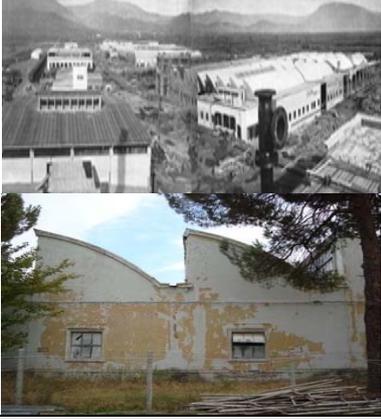
31	Fabrika-i Hümayun	Textile Products	1852	Muradiye, Bursa	Not functioning since 1980s. Planning for adaptive reuse as "Muradiye Cultural Centre Library and Youth Centre" Restoration of facade completed in 2003.	
32	Turgut Yılmaz'ın İpek Fabrikası	Textile Products	1852	Muradiye, Bursa	Not functioning. Planning for adaptive reuse as "Muradiye Cultural Centre Library and Youth Centre"	 
33	İpeker İpek Fabrikası	Textile Products	19 th Century	Umurbey Bursa	Adaptive reuse as Umurbey Cultural Centre, Tofas Automobile Museum and İpeker Information Park since 2002.	
34	Osman Fevzi Efendi İpek Fabrikası	Textile Products	19 th Century	Karaağaç, Bursa	Not functioning Poor condition	
35	Lengerhane	Iron-Metal Products	1703-1730	Hasköy, İstanbul	Adaptive reuse as Rahmi Koç Industry Museum	

36	Tophane-i Âmire	Iron-Metal Products	1730-1740	Tophane, İstanbul	Adaptive reuse as Cultural and Art Center of Mimar Sinan Fine Arts University,	
37	Haydarpaşa Gari'nin Atölyeleri	Iron-Metal Products	Early 20th Century	Haydarpaşa, İstanbul	Fully functioning. Good condition	
38	Zeytinburnu Demir Fabrikası	Iron-Metal Products	1845	Zeytinburnu	Partially Functioning. Good condition	
39	Darphane-i Âmire	Iron Metal Products	Late 18th Century	Sultanahmet İstanbul	Adaptive reuse as city museum	
40	Nalbanthane	Iron-Metal Products	1841	Üsküdar, İstanbul	Functioning as prayer room (military). Good condition.	

41	Darıca Çimento Fabrikası	Soil Products	1911	Gebze, Kocaeli	Fully functioning. Completely renovated.	
42	Şahbaz Ağiya Tuğla Fabrikası	Soil Products	1882	Sütlüce, İstanbul	Completely demolished. Land is used as Miniaturk model museum and green area.	
43	Paşabahçe Tuğla ve Kiremit Fabrikası	Soil Products	1910	Paşabahçe, İstanbul	Mostly demolished. Remaining part in poor condition.	
44	Çini Fabrika-i Hümayunu	Soil Products	1893-1894	Yıldız, İstanbul	Fully functioning. Good condition.	
45	Haznedar Tuğla Fabrikası	Soil Products	Before 1918	Merter, İstanbul	Not functioning. Factory relocated in 2001. Site to be used for residential construction.	
46	Arslan Osmanlı Anonim Şirketi	Soil Products	1910	Darıca, Kocaeli	Fully functioning. Completely renovated.	
47	Yunus Çimento Fabrikası	Soil Products	1926	Kartal, İstanbul	Demolished in 2004	

48	Bakırköy Baruthanesi	Chemical Products	Early 18 th century.	Bakırköy, İstanbul	Adaptive reuse as Yunus Emre cultural centre.	
49	Küçükçekmece Kibrit Fabrikası	Chemical Products	1888-1897	Küçükçekmece	Fully functioning (different types of production). Good condition	
50	Büyükdere Tekel Nektar ve Kibrit Fabrikası	Chemical Products, Food Products	1908-1932	Büyükdere, İstanbul	Not functioning.	
51	Azadlı Baruthanesi	Chemical Products	1794	Azadlı, İstanbul	Not functioning (storage only) Almost completely demolished	
52	Sabuncuzade Şakir Sabun Fabrikası	Chemical Products	1908	Eminönü, İstanbul	Fully functioning. Completely renovated.	

B. FROM EARLY REPUBLICAN PERIOD:

N o.	Name of Structure/Site	Industry Type	Foundation Year	Location	Current Use/Status	View From Site
1	Sümerbank Kayseri Dokuma Fabrikası	Textile Products	1935	Kayseri	Not functioning Poor condition	
2	Sümerbank Nazilli Basma Fabrikası	Textile Products	1937	Nazilli-Aydın	Not functioning. Partially used as university building.	
3	Sümerbank Bünyan Dokuma Fabrikası	Textile Products	1927	Bünyan-Kayseri	Functioning after privatization.	
4	Ereğli Bez Fabrikası	Textile Products	1937	Ereğli - Konya	Partially functioning after privatization.	
5	Isparta Sümerbank İplik Fabrikası (Sümer Halı)	Textile/ Chemical Products	1934	Isparta	Not functioning. Under risk of demolition	

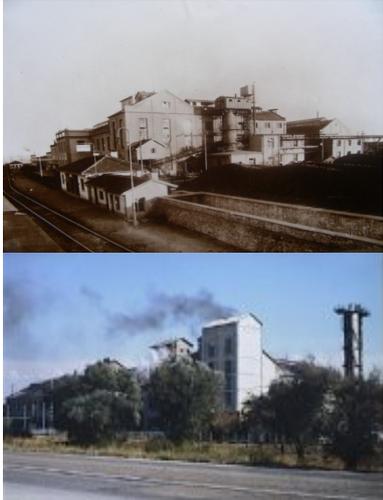
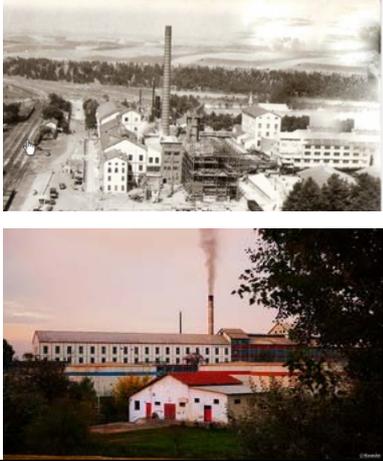
					after privatization.	
6	Malatya Sümerbank Dokuma Fabrikası	Textile Products	1939	Malatya	Demolished in 2008 after privatization in 2004. Shopping Mall-construction on-going at the site	
7	Gemlik Suni İpek Fabrikası	Textile Products	1938	Gemlik – Bursa	Closed in 2002. Reused as university campus since 2004. Mostly of the buildings were demolished. Partially preserved.	

8	Bursa Merinos Fabrikası	Textile Products	1938	Bursa	Not functioning since 2004. Some part of site was lost after a fire in 2006. Municipality plans for adaptive reuse as Cultural Center and Merinos Park.	 
9	Resulzade Kumaş Boyahanesi	Textile/ Chemical Products	First half of 20 th century	Bursa	Not functioning. Poor condition.	
10	Mustafa Dörtçelik İpek Fabrikası	Textile Products	First half of 20 th century	Bursa	Not functioning. Poor condition	
11	Ete Mensucat Boyahanesi	Textile/ Chemical Products	First half of 20 th century	Bursa	Not functioning. Future plans for adaptive reuse as Umurbey Youth Centre	
12	Rıfat Özbek İpek Fabrikası	Textile Products	First half of 20 th century	Bursa	Not functioning. Poor condition	
13	Mehmet Yüksel İpek Fabrikası	Textile Products	First half of 20 th century	Bursa	Not functioning. Poor condition.	
14	Doğan Yılmazipek İpek Fabrikası	Textile Products	First half of 20 th century	Bursa	Not functioning. Poor condition.	
15	Duruder İpek Fabrikası	Textile Products	First half of 20 th century	Bursa	Not functioning. Poor condition.	

16	Zonguldak Lavuar (Kömür Yıkama) Tesisleri	Mining	1950	Zonguldak	Mostly demolished in 2006. Plans for adaptive reuse as	 
17	Karabük Demir Çelik Fabrikaları ve Yerleşkesi	Iron-Metal Products	1937	Karabük	Functioning. Good condition. Technology upgraded	 
18	Ankara Havagazı Fabrikası	Energy	1926	Ankara	Demolished in 2006 despite the site was listed	 

19	Zonguldak Çatalağzı Termik Santrali	Energy	1946	Zonguldak	Original plant not functioning since 1991. Poor condition	 
20	Kayseri Tayyare ve Motor Fabrikası	Aerospace	1926	Kayseri	Not functioning since 1950. Currently used as maintenance & logistic centre for military air force.	
21	Etişesgut Uçak Fabrikası	Aerospace	1941	Ankara	Not functioning since 1959.	
22	Ankara Rüzgar Tüneli	Aerospace	1950	Ankara	Functioning. Good condition. Technology upgraded by TUBITAK	
23	Gazi Motor Fabrikası	Aerospace	1945	Ankara	Closed in 1952. Currently used as Turk Tractor factory. Original factory completely replaced.	

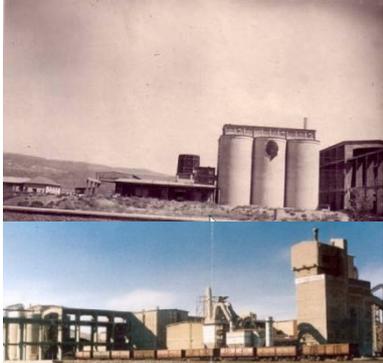
24	Çiftlik Silosu	Storage Food Products	1936	Ankara	Not functioning	
25	Polatlı Silosu	Storage Food Products	1933	Ankara	Not functioning	
26	Ankara Silosu	Storage Food Products	1934	Ankara	Not functioning	
27	Eskişehir Silosu	Storage Food Products	1934	Eskişehir	Adaptive reuse as hotel	
28	Haydarpaşa Silosu	Storage Food Products	1950	İstanbul	Functioning. First "slip form" construction of Turkey.	
29	Tosya Pirinç Fabrikası,	Food Products	1925	Tosya-Kastamonu	First rice factory of Turkey. Demolished in 2007	

30	Uşak Şeker Fabrikası	Food Products	1926	Uşak	Functioning. Good Condition. Under privatization programme.	
31	Alpullu Şeker Fabrikası	Food Products	1926	Alpullu-Kırklareli	Functioning. Good condition. Under privatization programme.	

32	Eskişehir Şeker Fabrikası	Food Products	1933	Eskişehir	Functioning. Original buildings were mostly replaced by new buildings which are also in poor condition today. Under privatization programme.	 
33	Turhal Şeker Fabrikası	Food Products	1934	Turhal-Tokat	Still functioning. Under privatization programme.	 
34	Ankara Şeker Fabrikası Yerleşkesi	Food Products,	1962	Ankara	Functioning. Good condition. Under privatization programme.	

35	Rize Zihni Derin Çay Fabrikası	Food Products	1947	Rize	First tea factory in Turkey. Still functioning.	 
36	Eskişehir Yaş Sebze ve Meyve Hali	Food Products Storage	1930	Eskişehir	Adaptive reuse as Youth Centre since 2000.	
37	Eskişehir Kanatlı Un Fabrikası	Food Products	1948	Eskişehir	Demolished in 2005 and a new shopping mall was constructed at the site in 2007.	
38	Eskişehir Yasın Çakır Un Fabrikası	Food Products	1938	Eskişehir	Not functioning since 2002. Owner is planning to build a touristic hotel at the site.	

39	Çubuk Barajı Gazinosu ve Su Süzgeçi	Infrastructure-Water	1936	Çubuk Ankara	Not functioning Poor condition	 
40	Besiktaş Astro Tütün Fabrikası	Tobacco Products	1930s	Istanbul	Not functioning. Renovation works on-going for adaptive reuse as hotel building.	 
41	İzmir Bayraklı Tütün Deposu	Tobacco Products	1940s	İzmir	Not functioning. Adaptive reuse studies at planning stage	
42	Trabzon Tekel Fabrikası Yerleşkesi	Tobacco Products	1951	Trabzon	Not functioning. Adaptive reuse as shopping mall & municipality offices.	

43	Paşabahçe İspirto+İçki Fabrikası	Beverage	1923	Paşabahçe	No functioning. Good condition. Privatization completed in 2009. Under risk of demolition since the site is assigned as tourism and/or trade centre.	
44	Paşabahçe Beykoz Şişe Cam Fabrikası	Soil Products Process	1934	Paşabahçe	Not functioning since 2002. Owner confirmed in 2008 that the land will be sold. Under risk of demolition since the land use is assigned for tourism purpose.	
45	Likör ve Kanyak Fabrikası	Food Products/ Beverage	1930	Mecidiyeköy	Not-functioning. Poor condition. Privatization done in 2008. Plans for demolishing and building new shopping mall	
46	Eskişehir Aral Şarap Fabrikası (Hayal Kahvesi)	Food Products/ Beverage	1930s	Eskişehir	Currently used as night club since 1996 after restoration.	
47	Ankara Çimento Fabrikası	Soil Products	1926	Ankara	Fully functioning after privatization in 1989.	
48	Sivas Çimento Fabrikası	Soil Products	1943	Sivas	Fully Functioning . Completely renovated. First exposed concrete building of Turkey.	

49	Eskişehir Kılıçoğlu Tuğla ve Kiremit Fabrikası	Soil Products	1927	Eskişehir	Not functioning since 2007.	
50	Eskişehir Kurt Tuğla ve Kiremit Fabrikası	Soil Products	1927	Eskişehir	Not functioning. Site mostly demolished and reuse as shopping mall today. Only some part of listed structures are preserved.	
51	İzmit Seka (Türkiye Selüloz ve Kağıt) Fabrikası	Wood Products	1936	İzmit	Not functioning. Studies for adaptive reuse of the site as Cultural Centre are on-going.	
52	Eskişehir Kereste Fabrikası	Wood Products	1949	Eskişehir	Stop functioning in 1985. Site currently reused as a night club after restoration in 2002	

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