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**Alexandria Forgotten Architecture
Reintegration of Industrial Heritage of Alexandria
in Urban Development Plans²**



Neglected Clay Factory in El Hammam village West of Alexandria

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Alexandria is one of the most famous ports of the Mediterranean. During the 19th and the 20th centuries, Alexandria flourished due to the growing trade with other ports of the Mediterranean. Its economy boomed and as a result its industrial base was expanded. The industrial heritage of Alexandria is rich and diverse. It includes warehouses, factories, lighthouses, docks, bridges and railway buildings. These buildings express a unique building typology and represent innovations in engineering, use of material, construction techniques and are part of social history. Today with the changing techniques of shipping, the global shift towards service industries, de-industrialization and the growing awareness of environmental issues, as well as the rapid expansion of Alexandria, the industrial heritage of Alexandria are now located inside the urban fabric of the city, and many buildings have become obsolete, abandoned and demolished. These problems of industrial heritage are not unique to Alexandria but are also common to other Mediterranean cities. It is believed that conservation and protection of these buildings and reusing them will maintain their cultural and social values, improve their urban surrounding, enhance living environment and retain their role as major components of the built environment of the city.

1. Definition and Value of industrial heritage

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.¹

The industrial heritage can be valued due to:

- i. 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.
- ii. The industrial heritage is of social value as part of the record of the lives of ordinary men and women, and as such it provides an important sense of identity. It is of technological and scientific value in the history of manufacturing, engineering, construction, and it may have considerable aesthetic value for the quality of its architecture, design or planning.
- iii. These values are intrinsic to the site itself, its fabric, components, machinery and setting, in the industrial landscape, in written documentation, and also in the intangible records of industry contained in human memories and customs.
- iv. Rarity, in terms of the survival of particular processes, site typologies or landscapes, adds particular value and should be carefully assessed. Early or pioneering examples are of especial value.

2. Alexandria as an Industrial Center

Alexander the Great established Alexandria 332 BCE to be the Capital of his empire. He chose a strip of land stretched between the Mediterranean and Lake Mariout and at the same time facing the Pharos Island. Through time the Island was connected to the main land by a bridge that with accumulated silt and debris forming two ports, the Eastern Harbor and the Western Harbor. As being a key point in the renowned ancient trading routes between the east and the west as the Silk Road and Spice Route, the port of Alexandria is one of the most famous all over the Mediterranean. Mohamed Ali, (1804 - 1843) the ruler of Egypt perceived the importance of Alexandria as a strategic city, not only to Egypt, but to the Mediterranean as well. Therefore, he began plans to renovate the city. His plans included the enlargement of the Alexandria seaport. As a result trade with the North had grown, and warehouses were constructed on the peripheral areas around the port to store exported and imported goods. The role of Alexandria was even maximized by constructing Mahmoudieh canal in 1820 which runs inside the seaport. The Canal connects the Nile to the Mediterranean. The Canal facilitated the transportation of imported and exported goods to and from Alexandria 1820, avec 400000 Fâlahs (paysans) des sept provinces de la Basse Egypte, ont eu levezé 12985833 mètres cubes de terres, de Sables et de terres vaseuses, pendant les mois de : Octobre, novembre, Décembre, Janvier, Février et Mars.

La traversée d'été : Murs de soutènement pour encadrer la partie du Canal entre les Lacs Aboukir et Mariout, le Bassin aux débouchés des eaux dans les Ports Neuf et le Port Vieux, et le Pont à la Porte dite de Rosette, et la grande Estrie de la tête du dit Canal, à Afki, furent construits dans les années suivantes, excepté les constructions entre les deux Lacs, qui furent terminées en décembre 1820. L'inauguration de son ouverture pour l'arrivée des eaux du Nil à Alexandrie, eut lieu en Janvier 1821, à la satisfaction de S. A. M. - Mohamed Ali Pacha.

Les Ponts et l'Estrie se construiront les années suivantes.

Figure 1: Mahmoudieh Canal 1820, connecting the Nile to the Mediterranean through the port of Alexandria by Pascal Coste

Source: Pascale Coste, Toutes Les Egyptes, Editions Parenthèses, Bibliothèque Municipale de Marseille, 1998

3. Industrial Assets of Alexandria

Industrial heritage encompasses the material remains of industry, such as sites, buildings and architecture, plants, machinery and equipments.ⁱⁱ Industrial heritage includes storehouses, warehouses, factories, lighthouses, bridges, maritime related buildings. The problem of industrial heritage is that it is always neglected, overlooked and undermined. Industrial heritage buildings should be merited because they express a unique building typology as well as innovations of structure systems, engineering, practicality and wise use of material at the time of their construction.ⁱⁱⁱ (Figure 2 – 3)

3.1. Types of industrial heritage

Generally speaking industrial heritage includes the following types:^{iv}

- 1 - Transportation heritage (bridges - canals - railway stations)
- 2 - Manufacturing heritage (factories - warehouses - kilns - windmills)
- 3 - Public utilities heritage (gas and electric services and water supply company)
- 4 - Maritime heritage (lighthouses - docks)

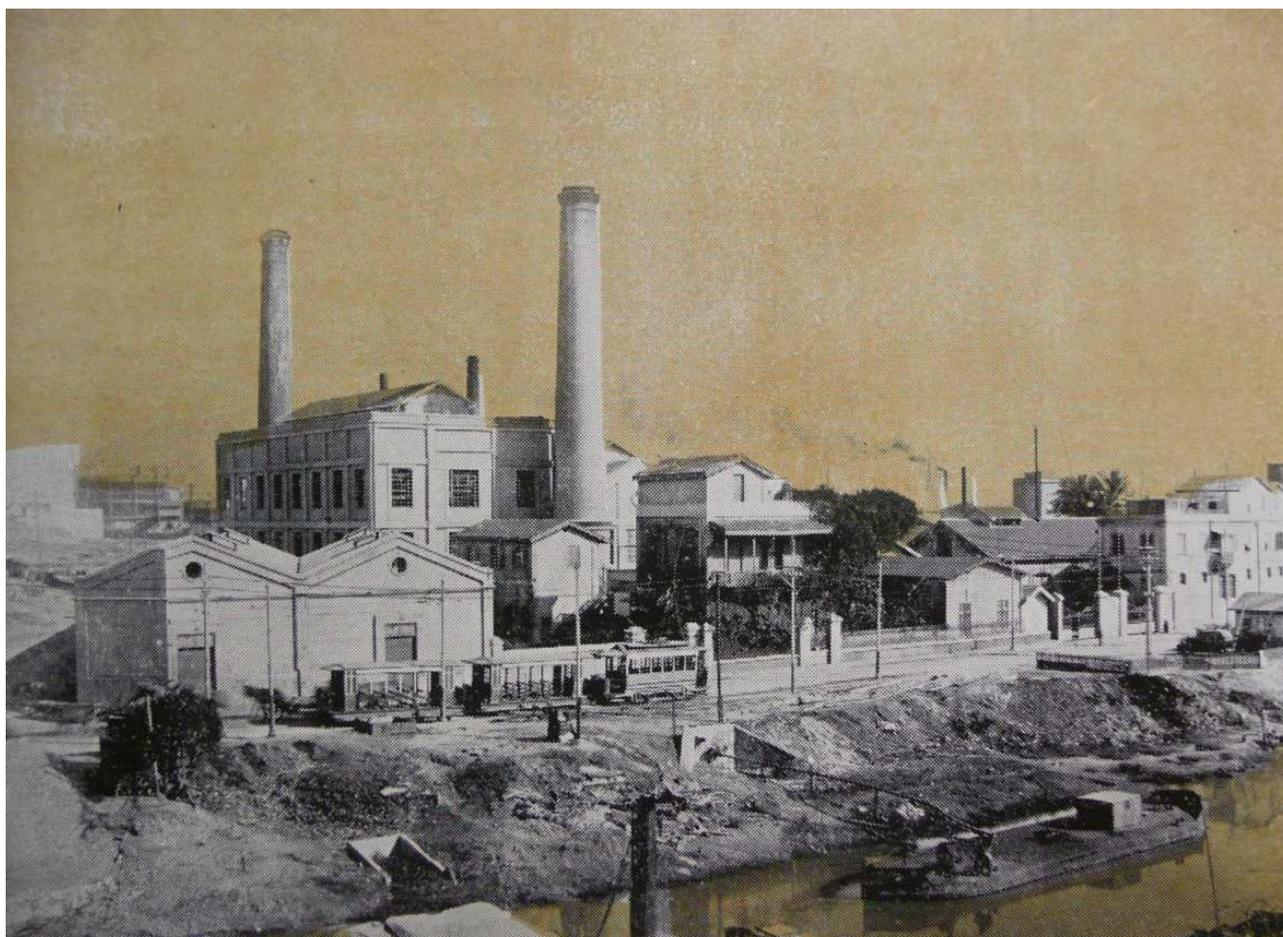


Figure 2: Example of industrial Heritage of Alexandria, The Alexandria & Ramleh Railway Company in Karmous

Source: *La renaissance d'Égypte*, édité par La Chambre De Commerce Egyptienne D'Alexandrie, Imprimerie L'Avenir Le Caire – Alexandrie, 1940, p 212

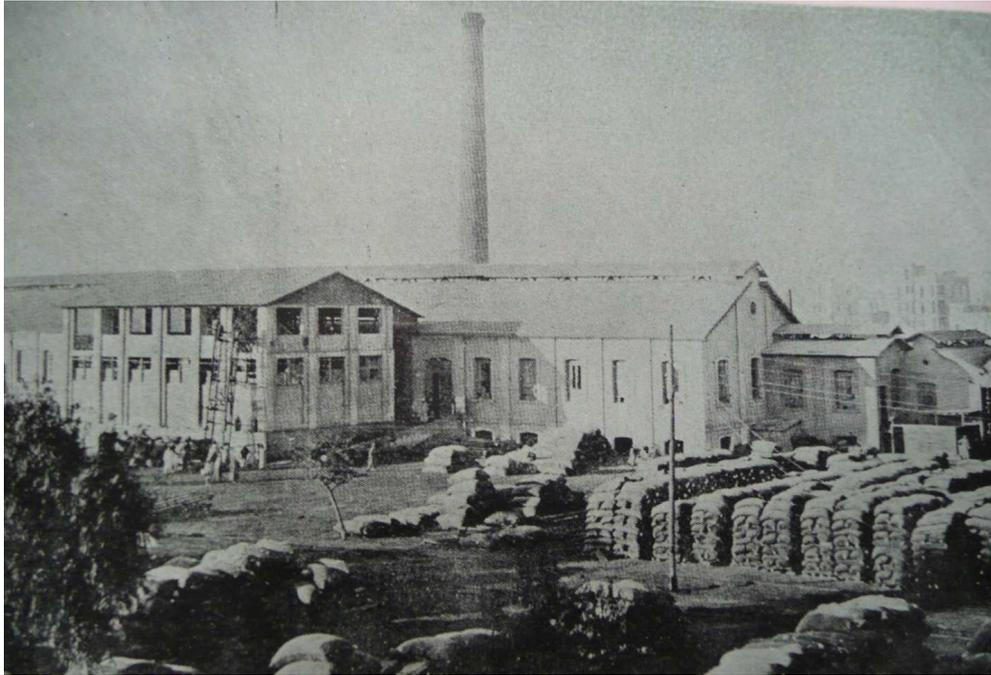


Figure 3: Example of industrial Heritage of Alexandria, Factory building of Société Misr Pour L'Egrenage Du Cotton
Source: La Renaissance d'Egypte, édité par La Chambre De Commerce Egyptienne D'Alexandrie, Imprimerie L'Avenir Le Caire – Alexandrie, 1940, p. 265

3.1.1. Windmills

Windmills are unique type of industrial heritage. They existed in Egypt since 1833 Mohamed Ali, the Vice Roy of Egypt, ordered to construct them all over Egypt to grind wheat for citizens and for military.^v They were built in the areas of El Mex, Qabbari and Ras el Tin along the hilly coastlines of The Mediterranean specially on hilly parts to catch winds. Windmills were round cylindrical structures built it in stone or red bricks with conical wooden roofs. The only remaining windmills in Alexandria are the two in Mandara and Montazah Palace. Both windmills are not functioning anymore and registered as archaeological sites. (Figure 4)



Figure 4: The only remaining windmills in Alexandria. Mandara windmill (left) Monatazah Palace (right).

Source: The Alexandria and Mediterranean Research Center, Bibliotheca Alexandrina

3.1.2. Chimneys

Chimneys are, and were used, as an exhaust for ovens of factories. They mark the urban landscape of Alexandria as memory of the past manufacturing age. Chimneys always possess a stylistic dignity. They are slender tapered and built in red bricks. They represent an engineering excellence as they can reach unusual heights and also withstanding wind loads. Now they have a smaller role to play. The most famous ones in the urban Alexandria are the one of the Water Company and those of Minat Al Bassal area. (Figures 5-6)



Figure 5: Chimney and building of Alexandria Water Company, built around 1886, standing gracefully in the urban landscape of Alexandria.

Source: The author

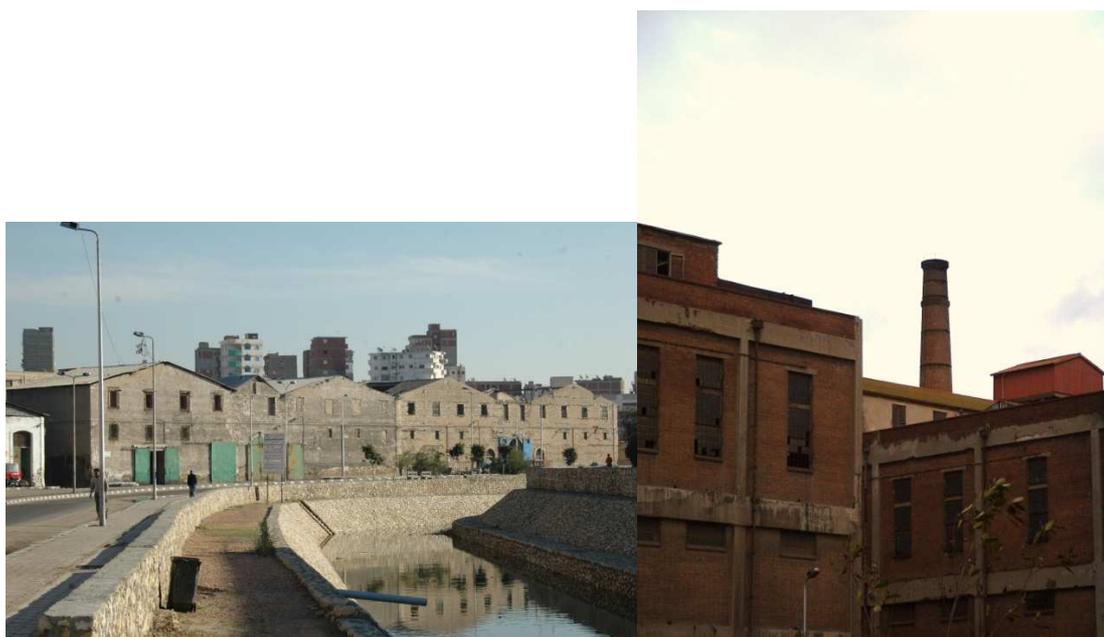


Figure 6: Detail of a chimney illustrates the craftsmanship of brickwork, using bands of metal strips to provide added strength and rigidity against the wind

Source: The author

3.1.3. Warehouses

Being located outside of the seaport, most of the warehouses were used to store exported and imported goods, mainly cotton and wood. Most of the warehouses were built in the end of the 19th century and the first half of the 20th century. They were strategically located at the area around the seaport and along the Mahmoudieh canal to facilitate transportation of goods to the rest of Egypt. Warehouses consist of large span single or multi storey building. The large spans were conceived by using timber wooden framed roofs covered by red tiles. The walls are wall bearing made of white sandstone or red bricks. Later warehouses were made in reinforced concrete framework slabs, and un-plastered redbrick infill which is known as “brick style”.^{vi} (Figures 7-8)



**Figure 7: The two types of warehouses to the left is the bearing wall and to the right is reinforced concrete with exposed concrete structure and redbrick infill.
Source: The author**



**Figure 8: A fine example of Alexandria industrial heritage. The administrative building of El Siouf Textile Company formerly Sebahi Company. With nationalization movement of Egyptian economy during the 50's and 60's, the architecture of industrial buildings was adopting local architectural styles as the new Islamic style as in this case.
Source: The Alexandria and Mediterranean Research Center, Bibliotheca Alexandrina**

3.1.4. Railway stations and transportation structures:

Alexandria railway station was built in 1925 by A. Lasciac. It consists of a large span steel frame with decorated brackets and colored glass work. The skylight is integrated in the roof to provide light underneath. The train station dominates Gomhuoreya square and is considered a landmark building on the city. Another unique structure is the royal garage outside of the Montazah palace. The garage was used to park the royal Pullman of the late king Farouk when he arrives from Cairo. This type of building is unique all over Egypt and maybe the entire world. The garage is located outside the walls of the palace and built with the same architectural style of the palace by red facing bricks and plaster. Now the garage is deserted and deteriorating.^{vii} (Figures 9-10)



Figure 9: Cairo train station designed by Antonio Lasciac, 1925

Source: The Alexandria and Mediterranean Research Center, Bibliotheca Alexandrina and the author



Figure 10 : The abundant garage of the Royal Pullman of the late king Farouk outside of Montazah palace. The building is now deserted and in a bad condition. Moreover, it is not registered as a listed building according to law no. 144/ 2006 of protecting architectural heritage.

Source: The author

3.1.5. Maritime heritage

Apart of the famous lighthouse of Alexandria, there are *other* lighthouses in Alexandria that have marked the coasts of the city for more than a hundred years. These lighthouses of Alexandria have made a significant contribution to maritime history; they embody distinctive architectural characteristics and represent a unique building type. Recent changes in the purpose of lighthouses and the advancement of navigation technologies may make lighthouses obsolete. There are 6 lighthouses remaining in the city and only four of them are still functioning.^{viii} (Figure 11)



Figure 11: Examples of the remaining lighthouses of Alexandria. From left to right: Low Mex (1908), Mex Old (1890), Ras el Tin lighthouse, (1848), Montazah lighthouse (1940's)

Source: The author, The Alexandria and Mediterranean Research Center, Bibliotheca Alexandrina

3.1.6. Cisterns

Alexandria used to have a very complex water system. The system was composed of sub terrain water canals branched of the Mahmoudieh canal and the Nile, water reservoirs cisterns and water canal to distribute the water all over the city. The cisterns were built with vaults formed arch bridges mounted one over the other. Many of the water cisterns were built on two or three levels. In 1872 Mohamed el Falaki recorded about 700 cisterns in Alexandria.^{ix} With the establishment of Alexandria Water Company at the second half of the 19th century, the cisterns became abundant. (Figure 12)



CITERNE EL-NABIH A ALEXANDRIE

Figure 12: El Nabih Cistern

Source: Bulletins du Comité de Conservation de l'Art Arabe, 1898, plate vi

4. Geographic locations of industrial heritage in Alexandria

Alexandria grew around the seaport. Later the city expanded to the east and to the south. The location of industry in Alexandria can be determined as follows: (Figure 13)

1- Area around the Seaport

Being close to the seaport, this area was used for storing imported and exported goods. The area was developed as a result of economic growth and the prosperity of Egypt during the second half of the 19th century and the first half of the 20th century. This area mainly consists of warehouses and cotton pressing facilities. Today, with the changing techniques of shipping and handling, these warehouses are no longer in use. Being abandoned and neglected, this industrial heritage have become dormant assets, threatened to be demolished. Its role as a major component of the built environment of the city is undermined and devaluated.

2 - Area along Mahmoudieh canal

Being close to the arterial that connects Alexandria to the rest of Egypt, many manufacturing plants and factories were located along the banks of the canal and also outside of the residential areas. The area developed first in the center and then expanded to the east during the second half of the 20th century.

3- Scattered areas around the city:

These factories are dispersed in different parts of the city urban areas. They are non pollutant industries as food processing industries and workshops.

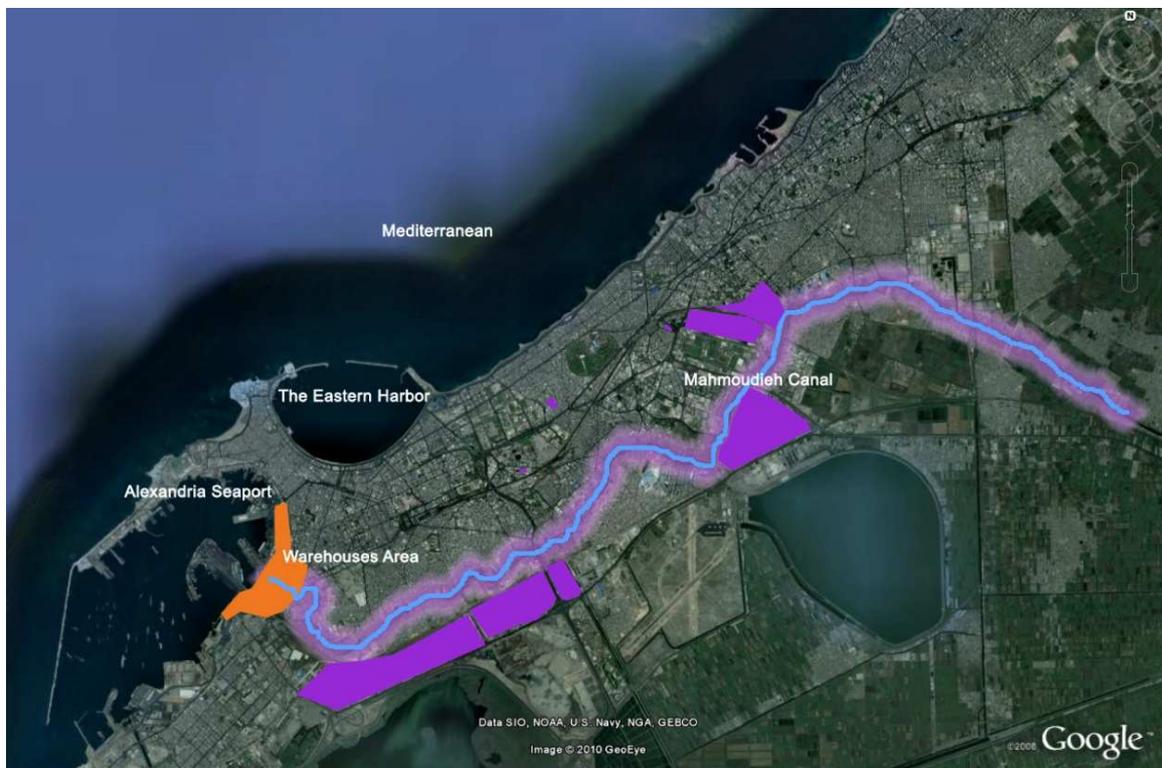


Figure 13: Satellite map of Alexandria illustrating the location of industries in the city
 Source: base map earth Google

5. The existing condition of industrial Heritage in Alexandria

The industrial heritage of Alexandria is facing many problems such as neglecting, obsolescence, and demolishing. The reasons for this can be referred to the following points:

1 - The urban and demographic pressures due to the limited area available for the expansion of the city. The high density of the population and the high land value of the factories, especially ones inside the city, persuaded owners to sell the land to investors. The factories that once were outside of the city area are now surrounded by housing quarters. (Figure 14)

2 - The privatization policy of the Egyptian economy which during the 90's where many factories were sold to private investors to redevelop the manufacturing process. On the contrary, the factories were demolished and developed as high rise housing projects such as the Coca Cola Beverage Company in Wabour El Maya, Pepsi Cola Company in Mostafa Kamel district.

3 - The protection of environment law issued 1994 that forbids the existence of workshops, factories and manufacturing plants inside housing areas.

4 - The changing techniques of fabrication, shipping and handling of goods in addition to the changing trends in industry and shift from heavy industries to the growing service industry such as telecommunications made a considerable number of the industrial buildings of Alexandria obsolete. (Figure 15)

5 - Lack of local public awareness of the value of industrial heritage as part of the urban heritage of Alexandria, and the absence of the local NGO's interested in keeping and promoting this heritage.^x In fact the register of heritage building or non monumental old structures which were compiled in 2006 listed very few industrial buildings with architectural merit.^{xi}

6 - Lack of financial resources for the conservation and restoration of industrial heritage.



Figure 14: Factories in Smouha area that were once outside of the city are now surrounded by housing apartment buildings

Source: The author



Figure 15: The deteriorated condition of industrial heritage of Alexandria
Source: The author

6 Integration of industrial heritage as an urban asset in the city's development plans

6.1. Industrial heritage in the master city plans

The subject of heritage conservation is relatively new to the Egypt. Till 2006 there were no laws in Egypt for protecting non monumental old structures and architectural heritage. The first list of conservation of non monumental old structures was compiled in 1982 in The Alexandria Master Plan for 2005. The list compiled about 126 buildings worthy of conservation.^{xii} There were very few industrial and buildings.^{xiii} The master plan proposed guidelines for preservation of these buildings. Unfortunately, the list was not supported by law to protect these buildings. The result is that many buildings, either industrial or not, were demolished. Even though the master plan acknowledged the importance of the conservation of heritage as an integral component of the master plan of the city, the same master plan recommended that Alexandria should be evacuated of industrial activities and all factories be relocated to the west of the city, and the area of industry in the city be transformed into housing.^{xiv}

6.2. Plan for action

Old factories and warehouses have solid and robust structures; they offer large free spans that provide a good opportunity to be adaptively reused. The interior can be partitioned and divided to accommodate several uses. As being located generally in dense populated area, especially those around the seaport of Alexandria, they can be reused as community centers providing services to local residents. They can be also reused to compensate the lack of services for these densely populated areas. They can be reused as cultural centers, community centers, clinics, entertainment centers, daycare centers, neighbourhood library, or commercial centers.

The studies of the integration this heritage should include:

- 1 – The immediate and wider urban context of the building in terms of community value, accessibility, characteristics of the surrounding neighbours, etc..
- 2 – The structural study and stabilization of the building

3 – Technical study of accommodating modern amenities and services in qualified building

4 - Studying the possible reuses of the industrial heritage of Alexandria. They can be reused as:

- Cultural and educational centers
- Local art exhibition
- Sports arenas, indoor play areas
- Restaurants, cafes and other.
- Museums of industry, folk arts, social history
- Community centers
- Bazaars and markets
- Tourist related activities as information interpretation centers
- Public libraries
- Office buildings for small businesses

7. Good Examples:

There are two good examples for the integration of industrial heritage in the urban context of the city. These examples confirm that when properly planned, industrial heritage can be real players in the city planning and offering the community a place for use.

7.1. Ford Motor Company

Ford Motor Company factory and administration buildings were built in 1948 as a car assembly plant in Alexandria. The factory was closed and the buildings were used as a school. The large spans and high ceilings were adopted to accommodate the new use of the building. (Figure 16-17)



Figure 16: Adoptive reuse of the former Ford Factory built in 1948 now the Riada Language School
source: The author



Figure 17: Interior of Ford Assembly Plant in Alexandria around 1959
Source: The Egyptian Chronicle

8. Conclusions

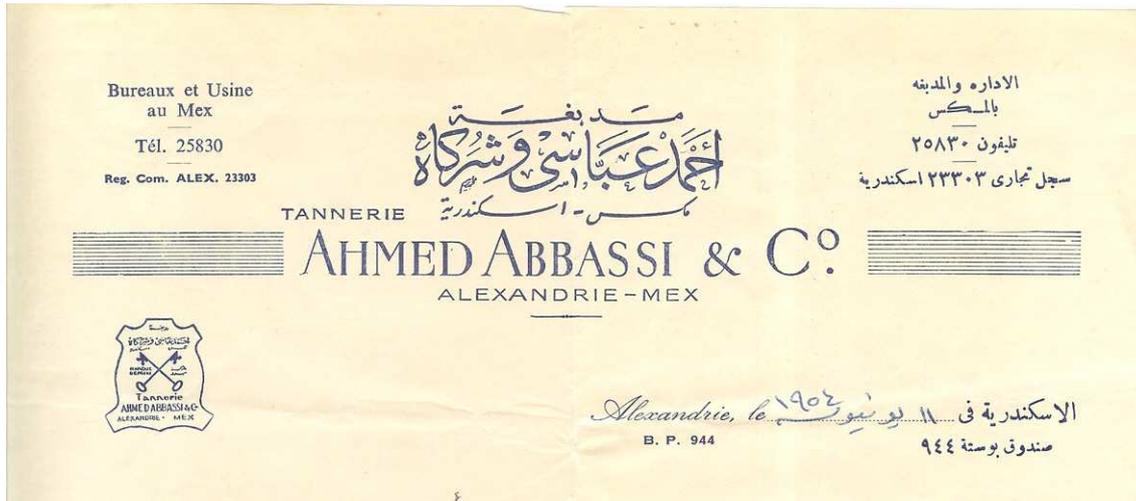
It can be stated clearly that the industrial heritage of Alexandria is in grave condition and it is threatened to be disappearing in the coming few year unless a drastic intervention and a major action is taken. The research affirms the latent potentials and opportunities in reusing the industrial heritage of Alexandria and re-integrating it into the larger macro urban system of the city and the local micro urban environment of its locality. By reusing these buildings, they will retain their cultural identity, improve their urban surrounding, enhance living environment and play a vital role in the local community and contribute into its wellness and keep their heritage values. There are good examples that illustrate and confirm that industrial heritage can have an architectural and an urban role on the urban scale and architectural scale.



Figure 18: Salonica Cigarette Company building in Rasafa St.,Moharrem Bey
source: The author



Figure 19: An abandoned factories along the Mahmoudieh canal in Moharrem Bey waiting to be replaced by residential apartments
source: The author



9 . Endnotes and References

ⁱ The Nizhny Tagil Charter for the Industrial Heritage, The International Committee for the Conservation of the Industrial Heritage (TICCIH), 17 July, 2003. <http://www.mnactec.cat/ticcih/pdf/NTagilCharter.pdf>

ⁱⁱ Xie Philp Feifan, Developing industrial heritage tourism: A case study of the proposed Jeep Museum in Toledo, Ohio , *Tourism Management*, Elsevier, no. 27 , 2006, p. 1321.

ⁱⁱⁱ This part of the research should not be considered a comprehensive inventory of the industrial heritage of Alexandria, rather it gives an example of the diversity and richness of this heritage.

^{iv} This classification is derived from, *Cent Elements del Patrimony Industrial A Catalunya*, Coordinacio Assumpcio Feliu Torras, 2002

^v Antar Ismail Ahmed, Hossas Ahmed Mokhtar, *Shortened Guide to Historical and Archeological site in Alexandria*, Mossasht Shabab El Gamaa, no date, pp. 24-25

^{vi} This term is used by Anita Anteniske, *Artistic features of Industrial Heritage, Architecture and Urban Planning Construction Science*, 2005 - 7329, p. 11.

^{vii} The building s not registered as building worthy of conservation according to the criteria set by law 144/2006.

^{viii} For full account of the lighthouses of Alexandria refer to, Aref Yasser, *The Lighthouses of Alexandria, "Let there be light"*, *Séminaire International le 2 & 3 novembre 2009, la conservation du patrimoine: didactiques et mise en pratiqu*, *Université Mentouri de Constantine*, or Yasser Aref, *Cultural Héritage Cairo, 6th - 8th December 2009 Cairo, Egypt*

^{ix} Ferro Liusa, Pallini C., ed. *Alexandria Beyond the Myth, Architecture Archeology and Urban Change*, Arab AFenice, 2009, p. 40

^x The author was assigned to be the local national representative of TICCIH organization for the promoting and conservation of industrial heritage of Alexandria, see www.ticcih.org

^{xi} Law no. 144 which was issued in 2006 is the first law in Egypt that concerns the listing and protecting of architectural heritage or non monumental old structures. Other law no 117 was only for monuments and antique buildings. About 1150 buildings were listed as buildings for conservation.

^{xii} *Alexandria Comprehensive Master Plan Project*, Final report, Governorate of Alexandria - University of Alexandria, Volume 5 ,November 1983, pp. 1778-1780.

^{xiii} Only one building related to industry that was listed which was the Cairo Railway Station.

^{xiv} *Alexandria Comprehensive Master Plan Project*, Final report, Governorate of Alexandria - University of Alexandria, Volume 3, November 1983, pp. 1093