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RESEARCH IN
ARCHITECTURE
11-14 NOV 2020



THE ARCHITECT AND THE CITY

VOLUME 1



UNIVERSITAT
POLITÀCNICA
DE VALÈNCIA



ESCOLA TÈCNICA
SUPERIOR
D'ARQUITECTURA

Publisher:

Editorial Universitat Politècnica de València, 2020
<http://www.lalibreria.upv.es>
ISBN 978-84-9048-842-3 (Set of two volumes)
978-84-9048-981-9 (Volume 1)
978-84-9048-982-6 (Volume 2)

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EAAE-ARCC International Conference & 2nd
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Universitat Politècnica de València

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ADAPTIVE REUSE & REGENERATION AS POTENTIAL FOR INDUSTRIAL SITES IN THE METROPOLITAN CITIES OF PAKISTAN

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ABSTRACT

Karachi and Lahore are Pakistan's most important cities and they are also among the world's most densely populated cities. After the partition of the Indian subcontinent in 1947, there was a strong emphasis on textile, mechanical, and steel industries such as *Pakistan steel mill* in Karachi and *PECO industry* in Lahore. Like many other sites, there are still visible traces of its industrial heritage. Industries such as these were the reason for internal migration towards the cities providing jobs and life to the cities.

Currently, the urban infrastructure & public amenities of these cities are inadequate and insufficient. But more construction will lead to demolition generating a loss of important layers of recent history. The urban paradox, however, may create opportunities for the city to consider reusing its abandoned industrial sites. Such processes occur in Europe and are now also followed by China where the reuse of former industrial sites became levers for city development and regeneration. Chinese cities like Beijing and Shanghai have several recent examples of adaptive reuse of abandoned industrial sites.

The paper presents the analysis of Karachi's & Lahore's industrial legacy, its adaptive reuse potential, and aims for its regeneration through a local, socio-economic, and cultural revival. This project fits within a broader Ph.D. research on the industrial heritage of Pakistan; its identification and potentialities. Unlike Europe, Pakistan does not recognize industrial sites as heritage. Political instruments to offer new programs for these areas are limited and they are currently not on the radar as potential places for future city development. However,

due to unprecedented demographic and geographic challenges, it may well become valuable to reconsider its potentials.

KEYWORDS

Industrial heritage; adaptive reuse; regeneration; revival; Pakistan.

INTRODUCTION

Pakistan's industrialization began during the British rule but continued after the Partition of British India in 1947. Shortly after the partition in the 1950s, it was the time of an apparent stagnation and mounting economic problems due to disruption of the separation. This was predicted by *TIME* magazine calling Pakistan an economic wreck (Zaidi 2005). By the mid 1960s, however, economic growth was strong and Pakistan was considered a model developing country (Papaneke 2019). There were different policies in different regimes in the history of Pakistan which had a direct influence on the industrialization and de-industrialization of Pakistan (Table 1).

1947-58 was the first phase in which the foundation was laid for the coming years. The second phase was from 1958-68 with the continuation of the previous policies, at least in general direction and principles. During the second phase, the industries grew rapidly, and they were mainly developed by private entrepreneurs. S.Akbar Zaidi called it *The decade of development* in his book *"Issues in Pakistan's economy(2015)"*. The third significant phase was 1972-1977 and it was bad luck or bad management years in

TIME PERIOD	DEVELOPMENT / DOWNFALL
1947	Division of subcontinent industries after Partition
1947-1958	The first phase after partition, Civil bureaucracy, and industrialization
1958-1971	Civil and military-bureaucratic capitalism
1973-1977	Nationalization in Bhutto regime
1977-1988	Structural adjustment; the Zia regime
1988-2019	Crises and abandonment of Industries

Source: Based on S. Akbar Zaidi's book *Issues in Pakistan economy*

Table 1. Pakistan Industrial development timeline.

Pakistan's industrial history. During this time the nationalization program was introduced in which some of the key private industries were taken over by the government and converted into state-owned industries like Bata engineering company BECO in Lahore was converted to Pakistan engineering company PECO. Most of the industries went into loss after nationalization and were shut down eventually (Zaidi 2005). Some of the abandoned industries are now engulfed by buildings around it due to the rapid urbanization of the cities.

The recent tide of industrial 'heritage' sites (Douet 2013; Wang and Nan 2007; 'The Nizhny Tagil Charter for the Industrial Heritage' 2003; Chen, Judd, and Hawken 2016; Xie 2015; Florentina-Cristina et al. 2014; Cizler, Pizzera, and Fischer 2015) and reuse is unique for south Asian countries. But it seems like an established and recognized strategy in city planning elsewhere. Many western cities preserved its industrial heritage and added values to it by inserting new programs with societal values. Pittsburgh, Chicago, and Detroit the major post-industrial cities in the United States have put life in the industrial spaces to becoming new community assets. Other examples of giving soul to abandoned industrial spaces include the navy yard in Philadelphia, or the High Line in New York (Robiglio 2017). There are also a variety of examples of activating industrial spaces in Europe like the LX factory in Lisbon Portugal,

C-mine (former mining sites) in Genk Belgium, tobacco company converted into residential use Wills buildings Liverpool, Richmond station in north Yorkshire converted into restaurant cinema and many more ('Re-Using Industrial Sites | Historic England' n.d.; 'Lx Factory' n.d.).

When it comes to the Pakistani context, little to no research and practices have been done related to industrial heritage identification and reuse. Pakistan Industries constructed after the partition are not old enough to be considered as heritage according to the Pakistan antiquity act 1975 (last modification in 1992) ('Antiquities Act1975' 1992). Besides numerous industrial sites like abandoned tobacco factories, food factories, steel mills, textile mills, warehouses, salt mines, and railway buildings, industrial heritage, and its potential is little recognized in Pakistan. There are no policies and guidelines at hand related to industrial heritage conservation, regeneration, and reuse. The argument of this paper, therefore, is that the industrial heritage sites of Karachi & Lahore have the potential for adaptation and can be initiated by regional-level factors. We want to identify 19th and 20th-century industrial buildings and the involvement of cultural capital (i.e. local artist community, cultural organizations, educational institutes; and the introduction of industrial heritage in regional cultural and heritage policy).

Since the topic of industrial heritage is a new concept for the Pakistan Heritage field, so the first part of the paper is case selection. The case selection area is done broadly by selecting the two largest cities of Pakistan briefly explaining its history and its potential in the field of industrial heritage and its adaptive reuse. The second part is an analytical framework discussing physical type of industrial heritage in Pakistan, possibility in its regeneration, and interventions for activating such sites. The last part discusses international case studies of industrial heritage and its reuse, selected in a way which are relatable to the industrial sites in Pakistan and its potential in the locality in terms of issues and possibilities.

1. CASE SELECTION

The cities of Karachi and Lahore are selected as a starting point for the study and identification of industrial heritage in Pakistan. Both cities have metropolitan characteristics. Karachi is the capital of Sindh province (also the first capital of Pakistan) and at the same time economic capital of Pakistan. It is also the largest city of Pakistan in terms of population (Table 2). The commercial functions of the city are strengthened by international investment, due to its maritime business (Khuhro and Mooraj 1997). Similarly, Lahore is the capital of Punjab province and the cultural capital of Pakistan. Lahore is the second-largest city in terms of population in Pakistan with a history

dating back to 1000BC (Kabir, Abbas, and Hayat 2017) (Table 2)(Fig 1). Both cities have large stocks of industrial heritage but from different activities like steel, engineering, textile, and food industries. Unfortunately, most of the practices related to the industrial buildings after closure is neglect or demolition. Unlike the situation in Europe or the USA, such sites are not considered as heritage, witnessing from a particular kind of urban memory. They are measured with the same parameters and rules with which cultural and religious heritage are measured. Although according to *Nizhny Tagil* charter ('The Nizhny Tagil Charter for the Industrial Heritage' 2003) industrial heritage is defined differently;

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 historical period of principal interest extends forward from the beginning of the Industrial Revolution in the second half of the eighteenth century up to and including the present day, while also examining its earlier pre-industrial and proto-industrial roots ('The Nizhny Tagil Charter for the Industrial Heritage' 2003).

City name	City orientation	Population	Area	Types of industries
Karachi	Economic capital, beta global city, cosmopolitan, trading port since 1852	14.2 million	3780 sq.km	Textile, state-led heavy Industries: Steel Industries, transportation, footwears
Lahore	Cultural capital, Historically rich, Educational institutes	11.2 million	1305 sq.km	State-led heavy industries: Automotive & Agriculture machinery, Electrical equipment, small Industries

Source: Based on National Bureau of Statistic Pakistan (2017)

Table 2. Statistics and types of industries in Karachi and Lahore.

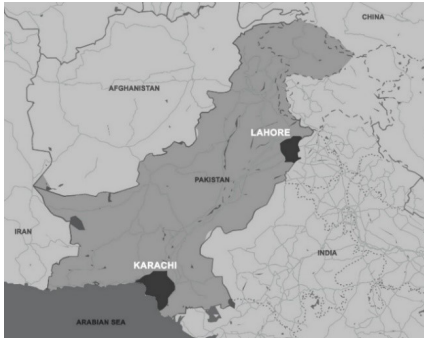


Figure 1. Source: Google Maps, www.google.be/maps edited by author

Instead of demolition the urban paradox mentioned earlier could be the reuse of these sites for a new purpose. Adaptive reuse – the addition of new programs to an existing historical building (Plevoets and Cleempoel 2011) – is the richer option compared to demolition. Rebuilding also enhances the long term usefulness of a building (Bullen 2007). Conversion of architectural sites is not a new phenomenon in the history of the discipline (Wilkinson et al. 2014). Chen, Judd, and Hawken (2016) refer to Grodach and Loukaitou (2007) to develop three cultural development strategies: “progressive

strategies”, “creative class strategies” and “entrepreneurial strategies” and used it to investigate the adaptive reuse of industrial heritage for cultural purpose in Beijing, Shanghai and Chongqing (Table 3) Pakistan’s industrial development timeline is almost the same as in China. Modern industrial development in China after the 1840 Opium war with Britain was continued after founding of the People Republic of China (PRC) in 1949. In the 1970s due to the high level of urbanization and pollution in the city centers the industries were shifted and the old industrial sites were regenerated and adaptively reused as cultural precincts (Chen, Judd, and Hawken 2016). Most often, adaptive reuse is considered as the only option for regeneration of an industrial building or area. This roots of adaptive reuse in the United States can be found in the 1960s in economically buoyant cities like San Francisco and Boston. Architects Wurster Bernadi and Emmons conversion of Ghirardelli chocolate factory to offices, shops, galleries, and restaurants in the 1964 & 1968 set a style that has followed and evolved worldwide (Douet 2013). The trend of waterfront rehabilitation based on recycled historic buildings have turned industrial waterfronts into desirable properties like St Kathrine Docks, London; Albert Dock,

Strategy type	Goals	Types of cultural projects and programs	Target audiences
Progressive	Community development Arts education and access	Public arts centers Art education and Programmes	Underserved residential population
Creative class	Economic growth through quality of life amenities Promotion of “creative economy”	Arts and entertainment districts Collaboration between arts and private sector	Prospective residents “Knowledge-based” workers
Entrepreneurial	Economic growth through tourism and city image Private sector investments	Cultural landmarks Cultural festivals Promotional activities	Tourists Affluent residents

Source: Based on (Grodach and Loukaitou-Sideris 2007) table by (Chen, Judd, and Hawken 2016)

Table 3. Types of cultural development strategies.

Liverpool; Darling Harbor, Sydney and Granville island, Vancouver. The conversion of the great textile mill complex of Lowell, Massachusetts, into a National historic park is also an equally influential project. (Douet 2013).

The mentioned cities in Pakistan are famous for their historical importance, art, and architecture. National Academy of Performing Arts (NAPA) is one of the famous schools of performing arts in Karachi. National College of Arts (NCA) Lahore is one of the top architecture and art schools in Pakistan. The abandoned industrial sites can be used by these artists communities if assisted by the government and can be a starting point for its regeneration. The second important issue in these cities is the shortage of public and green spaces. According to a report in Dawn newspaper, green areas in Karachi decreased by 4 percent from 2005 to 2017. Many residential neighborhood have almost no green areas,(Ahmed 2020). According to the united Nations health standards, the availability of green space is at least 9 sqm per person while most areas in Lahore city fall short than the UN standards (Shirazi, Zia, and Minallah 2014). The industrial sites have also the potential to be reused as public green spaces and community centers. The examples of industrial sites in Pakistan are discussed below in section four.

2. POTENTIAL INTERVENING FACTORS; AN ANALYTICAL FRAMEWORK

This section characterizes the local intervening factors which can be a lever to developing and reusing industrial heritage or sites. Most of the industrial heritage of Pakistan can be identified from 1958-1971 during the civil and military bureaucratic capitalism and then from 1977-1988 after structural adjustment policies by Zia Regime.

2.1. Physical type of industrial heritage

After the partition, larger parts of the industries of Indian subcontinent came in the territory of India, most of the industrial development in Pakistan started in the mid-20th century (Jaleel 2012). Current industrial types in Pakistan were brought up in two periods, first phase after the partition in the 1950s civil bureaucracy and industrialization and in the 1970s civil and military bureaucratic capitalism. The third period after the 1970s stopped most of the industries due to various reasons one of which was the Nationalization policy.

2.2. Possible role of the community in regeneration

In various examples in the UK, USA, Europe, and now also in China, we see that bottom-up initiatives from the cultural community started using the abandoned industrial sites due to laxer controls and lower rates and converted them into art districts (Evans 2009). In the informal cultural district formation, the local artist community plays a leading role. The organic development of creative clusters and cultural quarters emerged in the USA and Europe in the 1970s and 1980s (Zielke and Waibel 2014).

2.3. Policy intervention influence on activating such sites

The main stakeholders and the different development modes for the governance of developing creative spaces in china are summarized by Zielke and Waibel (2013). The main stakeholders in the development of cultural precincts from redundant industrial sites include the local state, artist community, privates developers, and the actual owners (Chen, Judd, and Hawken 2016). Four types of development methods are put forwarded for the development of creative spaces. *Bottom-Up method*; the method in which industrial

areas are organically occupied by artists and then through official policy promoted by the local government. *Top-Down*; the method in which the local government plays different roles to arrange a common ground for investors owners and developers. *Public-Private Partnership PPP*; In this method the private investor and local government team up to establish a public-private company to coordinate interest between them. *Private Development*; In the private development method the government acts as a supervisor or supporter while the private developer finances most of the investment and in return gain the value addition of the property. In all the development modes local government is involved in one or another way.

3. THE INDUSTRIAL HERITAGE REUSE IN INTERNATIONAL CITIES AND POTENTIAL IN THE STUDY CITIES: A CASE COMPARISON

Besides a handful of immediate reuse potential industrial heritage sites in the cities of Lahore and Karachi (Table 4), they are still standing abandoned and are on the verge of decay, in some cases demolition. First, the urgency is to consider such sites a valuable heritage asset as mentioned by James Douet.

The industrial landscape is a misunderstood heritage, at worst urban rustbelt, dangerous, a toxic wilderness; at best, an outstanding historical resource to be re-used, regenerating communities, offering real richness and opportunity, reinforcing cultural identity and creating new commercial prospects. But it can also be a vivid reminder of how today's world came to be the way it is, when industry employed whole communities and provided the heartbeat for many towns and cities. In this respect these historic industrial landscapes deserve our closest attention (Douet 2013).

The antiquities' acts and policies related to the heritage of Pakistan (M.R Mughal 1995) is focused on the archeological artifacts, cultural and religious heritage. Industrial buildings in general are not considered as heritage and neither the reuse potential is exploited. Comparing Industrial heritage reuse trend in the city of Beijing summarized by Chen, Judd & Hawke in three ways; In the 1990s it was spontaneously reused by the artist community; in the 2000s was established by private developers through PPP and was driven by the local government in 2010. An example worth mentioning is the conversion of a formal electronics factory

City name	Redundant industrial buildings	City rundown
Karachi	Textile industries, Steel Industries, transportation, railway infrastructure, seaport related infrastructure	Economic capital, artist community, Educational institutes, Entrepreneurs, Small businesses, Fashion capital
Lahore	Mechanical industries, leather industries, textile industries, flour mills	Artist community, Cultural capital, Historically rich, Educational institutes

Table 4. Abandoned industries and potential reuse users.

from the 1950s to “798 Art Zone” in the 1990s. Promoted by the Beijing government it was converted into a “mature creative cluster” from an “underground space of art” (Zielke and Waibel 2014)(Fig 2-3). Chunming Slub Mill a defunct cotton factory in Shanghai is similarly converted into an art district, it was first reused by local artists in the 1990s and then expanded by the Shanghai CIC policy in 2004 (Chen, Judd, and Hawken 2016)(Fig 4).



Figure 2-3. 798 cultural district Beijing. Source: (Martin Thomas Photography-Michael Reynolds)



Figure 4. M50 Shanghai China. Source: (Chinatravelpage.com)

3.1. Industrial development history of Pakistan

The industrial legacy of Pakistan can be traced back to the mid-19th century during the British rule in the subcontinent. But after the partition in 1947 Pakistan got 34 industries

out of the total 955 in the Indian subcontinent. Most of them were small size industries and were based on raw materials like small sugar mills, cotton ginning factories, flour mills, etc. The first investment in the industries was by the private investors from 1947-1950. In 1952 Pakistan Industrial Corporation PIDC was established by the government of Pakistan to invest in heavy industries like cement, fertilizer, jute mills SUI Karachi gas pipeline

and by 1971 completed 59 industries and created a solid industrial sector base for Pakistan. The GDP share of the industrial sector rose from 9.7% in 1954-55 to 11.9% in 1959-60. After the 1960s Pakistan started investment in heavy industries shifting from consumer goods industries such as mechanical, Petro-chemical, iron, and steel. From 1971-77 the industrial growth and export were disappointing due to various reasons like; separation of East Pakistan, the Indo-Pak war in 1971, suspension of foreign aid, loss of local market of east Pakistan, fall in export, nationalization of industries, and unfavorable investment climate (Jaleel 2012). Due to the above-mentioned reason, there were a lot of industrial buildings abandoned which can be reused for different functions by suitable interventions.

3.2. Cultural capital artist community, cultural organization and Industrial heritage in the study cities

If you take a comparable example of a city to Lahore in terms of industrial development and its reuse will be Beijing. The industrial heritage reuse was driven by the critical mass of artists as Beijing is rich in history due to serving as a capital for five dynasties. Beijing has long been a political and cultural center (Chen, Judd, and Hawken 2016). Similar is the case with Lahore, it is the cultural capital of Pakistan and its importance can be seen in the history of different Rules like Hindu raj, Afghans, Mughals, Sikhs, Britishers, and many more (Baqir 1985). Due to its geographic location, Lahore once called the Paris of the east is still the center of attraction for many in recent years (Kabir, Abbas, and Hayat 2017).

Lahore has many universities, art schools, theater, and libraries with a huge density of artist community as compared to other cities of Pakistan (Table 5). Some of the leading art schools in the country are in Lahore. Considering the presence of such a potential artist community there is an opportunity in the industrial sites like PECO industry in Lahore to be reused as cultural precincts like M50 in Shanghai and 798 Art Zone in Beijing. Pakistan Engineering Company PECO which was once Batala Engineering Company BECO established in 1932 by Chaudry Muhammad Latif Batala was one of the leading and Key industries of Pakistan before the nationalization policy (Khan 2008). After the nationalization policy, it went under loss and was eventually closed, currently, it is lying abandoned in the center of Lahore within a densely populated area (Fig 5-6)

City name	Listed universities	Art schools	Museums, cinemas & theaters	Libraries,
Karachi	26	18	68	
Lahore	34	16	52	

Table 5. Educational institutes and cultural resources in the study cities.

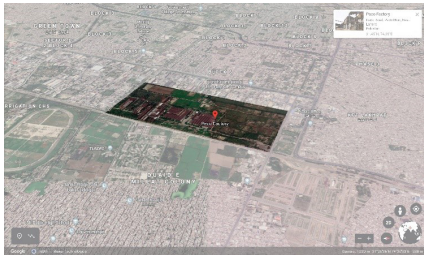


Figure 5-6. PECO industry Lahore Pakistan: (Google earth) edited by the first author

The PECO industry lies almost in the center of densely populated Lahore with universities and sports areas in the immediate vicinity. These points add in the value and promising reuse of such a potential site in the center of the city if opened and assisted by the local government as it is walled and guarded in the current situation.

Similarly, if we talk about the city of Karachi a comparable example is Shanghai. During the trading port period, Shanghai was developed under the influence of semi-colonial and semi-feudal system and the modern culture known as sea culture has a hybrid nature and fusion of western and eastern culture (Wu 2004). Its culture is more market-driven and is based on design industries like media, fashion, and advertising (Ren and Sun 2012). Similarly, the case with Karachi as it is the fashion capital of Pakistan with an active seaport and its architecture is mainly influenced by British colonial architecture. Karachi has also a vast market of small industries and handicrafts. Karachi also has many universities, art schools, libraries, and museums with one of the active artist community of Pakistan. There are several examples of abandoned seaport sheds, railway infrastructure textile industries which can be reused for a new function in the densely populated city of Karachi. The most important example is the recently abandoned Pakistan steel mill PSM with an area of almost 76 square kilometers constructed in the 1960-70s with the help of the USSR. 20 different plants including a thermal power station, forklifts, warehouses, conveyor belts, railway tracks, stockyards, and dozens of other industries standing still (Hasnain 2016) (Fig 7-8). Although political figures of Pakistan always discuss about reviving the PSM but it is already consider as sick industry by some of the economist as it is under the debt of almost 130 million USD.



Figure 7. Pakistan Steel Mill Karachi: (Google maps) edited by first author



Figure 8. Pakistan Steel Mill Karachi: (pakistantoady.com)

3.3. Policy intervention

Whether it be a top-down, bottom-up, public-private partnership PPP or private development the local government involvement in reusing such kind of industrial sites cannot be ignored. More specifically the strategies for the promotion and development of creative industries on such abandoned industrial sites like providing funding, sponsoring cultural spaces, and providing a resident card for prominent professionals (Chou 2012). Such initiatives have been given in the abandoned industrial sites of Beijing which acted as a catalyzer for creating a full-fledged cultural district. Capital steel industrial Park in Beijing is an example of such state-sponsored cultural projects.

DISCUSSION AND CONCLUSION

Industrial development history has left Karachi and Lahore with a substantial amount of industrial heritage. But they are not considered as heritage, which, sadly, seems to hinder their development. We observe the same industrial development timeline in the cities of Beijing and Shanghai, but also in other European or American cities. The first step towards the preservation of industrial heritage in Pakistan is the identification of its potential. Besides looking at it from a Heritage perspective it also creates the possibility for reuse and can be a key area in the city regeneration. For example, the PECO industry in Lahore can be a vital organ for the city's cultural and art activities. Similarly, the Pakistan steel mill can be a center for shifting the urban nucleus of the city as it is already saturated. The heritage reuse policy requires greater consideration of the regional context. Both the cities face a shortage of green urban spaces and parks and these abandoned sites have the potential to be reused as green public and community spaces.

The findings of the paper are; the major intervening factors in starting for a chain reaction of industrial heritage reuse in Pakistan can be government policy and cultural capital. Government policies can start from; sponsored events flagships, incentive policy on a local cultural program, funding on cultural festivals in such kind of abandoned sites. Investigating the regional context and involving the local cultural capital like public cultural organization, public or private cultural enterprises, educational resources; schools, universities, colleges, artist community, and professionals involved in cultural industry. Involving the mentioned resources of the city and providing incentives can be the start of developing and regenerating such abandoned industrial sites which is a sustainable way of preserving such sites both in a material and environmental point of view.

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