



POST-INDUSTRIAL AREA IN TRANSITION

RENAISSANCE OF A DERELICT INDUSTRIAL AREA IN BEIJING

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Urban Regeneration Studio / Thesis Plan for P2. Jan. 2013

THESIS PLAN

Title: Industrial Area in Transition

Sub-title: Renaissance of a Derelict Industrial Area in Beijing

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Msc3 Urbanism

Urban Regeneration Graduation Studio

January, 2013

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INTRODUCTION

PART

1.

1.1 GLOBAL TREND

Since 1970s, the European cities have experienced a radical restructuring of their economic base, therefore resulted in a series of social problems as consequences, including social exclusion and unemployment, etc. Moreover, there has been increasing number of industrial dereliction emerging in inner-city area, and physical infrastructure of many cities was becoming obsolete and in need of replacement. Therefore, there has been an urgent need for urban revitalization. As stated by Couch and Franser,

"These cities are facing a complex array of economic, social, physical, environmental and fiscal problems. Cities have to compete for investment and economic growth at the same time as dealing with the dereliction left by previous generations."

In fact, the industry restructuring occurred in global scale, which intensified the decline of old industrial areas. As the result, economic growth opportunities have shifted from manufacturing industry to emerging new sectors, which are normally clustered together, for instance, creative industries and knowledge-based economy. The trend resulted in the transition of these old industrial areas, not only in spatial, but also in economic aspects.

Moreover, in last few decades, there has been an increasing concern on environmental issues during the rapid urbanization and modernization process in most of the developing countries, especially in Chinese cities, the sustainability has been put on the top of the agendas for urban development in the future. Accompanied by the booming land price and the pollution issue arising in those big cities that are still expanding, a number of

heavy industries were forced to move out to periphery or another less developed city. In this way, pollution is mitigated and the city image will be improved by replacement of those huge production plants.

However, removal of those important industries that have been functioning as economic pillars of the city may intensify the decline of local economy in a large extent. Furthermore, some of the old industries with long history have been witnessed and influenced the development of the city, and they have grown with the city together and become part of the cultural identity which cannot be neglected even after they have moved away.

Therefore, the strategic planning for redevelopment of those derelict industrial areas and re-integration into the urban environment became an urgent need, not only in spatial transition and ecological renewal, but also in industrial heritage and economic efficiency point of view. It's not an easy task, and one that has inherent contradictions (PERSY, S. 2003). To seek to a solution, the central focus should be put on the 'environmental enhancement, not only through brownfield cleanup but also through the application of ecological planning principles to all projects from infrastructure improvements to housing developments to the creation of business and technology parks. '(Fox 2001, P. 9.)

1.1 GLOBAL TREND



Figure 1.1: Abandoned Industrial Buildings at the former Bethlehem Steel.
(Image Source: Tin Can Traveler)

1.2 CHINESE CONTEXT

BRIEF HISTORY OF INDUSTRIALIZATION IN BEIJING

Designated function of city refers to the summary of city strategies. Once it is defined, it will bring about long-term and profound influences to the city's development (CAO, X. 2008). Since the establishment of People's Republic of China in 1949, there were three different phases in the strategic planning of Beijing that had influenced the industrialization process enormously.

The first phase started from 1949, when researchers and urbanists from local and abroad gathered together to discuss about the development direction of the capital city of Beijing in the future, and came to the consensus that Beijing should be a complexity of politics, culture and technology, as well as a large industrial city. Afterwards, six industrial districts were planned by the government, which counted 23.1% of total urban land (one of the districts is called Shijingshan in the west part of Beijing, which I have chosen for my graduation project site). Since 1953, enormous amount of manufactures and heavy industries have been founded since then, and the rising industrial production brought the first economic prosperity to Beijing after the WWII.

In 1958, steel production has been put on the top of agendas for the economic development in the national scale, since there was a notion that the large amount of steel production could be the symbol of a highly modernized society, which was proved to be wrong and brought huge damage to the natural and urban environment. To respond to this guiding principle, the Capital Steel was expanded enormously and a number of affiliated industries have been spawn in Beijing, promoting

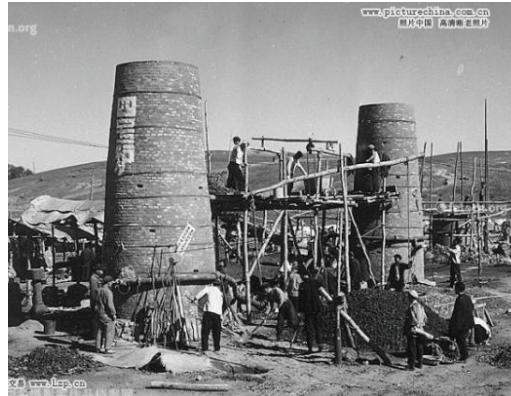


Figure 1.2: Spontaneous steel production activity of the whole public (native style blast furnaces, 1958)



Figure 1.3: Propaganda poster of 'Great Leap Forward'

the birth of a steel and iron production base. Apart from those large-scale industrial areas in city periphery planned by the government, there has been increasing number of small factories emerging from the local neighborhoods in a very bottom-up way. Over 100,000 unemployed housewives spontaneously transformed their houses and communal courtyards into small workshops, attempting to produce steel from their household iron items and contribute to the social trend triggered by the 'Cultural Revolution' that was regarded as the darkest period in Chinese contemporary history. However, it was the Utopian plan to catch up with the developed capitalist countries- the 'Great Leap Forward' (1958-1961) that intensified the conflicts between industrial development and the urbanization process of Beijing. Since most of the small workshops were located in urban area and even deep in neighborhoods like acupunctures, large energy consumption and pollution including contaminants and noise put the residents into great suffering. Therefore, the wrong city strategy has caused irreparable mistakes in the city development at that period.

1.2 CHINESE CONTEXT

DE-INDUSTRIALIZATION

A new phase of urban transformation followed during the 1980s, the designated function of the capital city of Beijing has been modified. It was decided that Beijing should be the political and cultural centre of China instead of productive city, and the development of traditional industries should comply with the main function of the city. To put it in a simple way, there was urgent need for a transition of economic base from traditional industries towards knowledge and technology-related industries. To respond to this decision by the central government, a number of traditional industries and contaminated factories were forced to move out to city periphery since 1984, providing available land for new urban programs including housing, hotel and public facilities, which gained both social and environmental benefit.

In the past few decades, there has been an increasing concern on environmental issues during the rapid urbanization process in most of developing countries. Especially in Chinese cities, the sustainability has been put on the top of agendas for urban development in the future, resulting in decline and dereliction of some traditional industrial areas

in inner city. For many commentators the urban 'new economy' lies at the heart of inner city restructuring (Scott 2000; Cooke & Lazeretti 2008; Hutton 2010; Van Heur 2010). It was assumed that the process of replacing old manufacturing-based industrial activities with new knowledge-based industries have brought those old industrial cities new networks of production and exchange, along with new kinds of workers that transform the industrial system of the inner city (GU, X. 2012). For those areas which were initially located in suburban when the industries were established, because of large-scale city expansion they have been gradually swallowed by urbanization wave and becoming fragments immersed in the inner city urban environment. In this context, the redevelopment of those derelict industrial quarters became great opportunities to accommodate emerging demands from modernization process in the city point of view and to promote urban regeneration in the local point of view.

1.2 CHINESE CONTEXT

TYPICAL DEVELOPING MODE

However, the typical developing mode in China only cares about profit but neglect the voice of the public. Furthermore, this mode is often real estate driven approach and starts from large-scale of demolition to make space for new programs, showing no respect to the existing value of the site and real demands of the local residents.

The first step is to completely demolish the buildings on the site to maximize the availability for new development. Since the existing built environment is usually seen as obstacles. Although demolition can be very expensive, it is a simple way to get a complete vacant lot. Normally, the local residents do not have opportunity to be involved in the decision-making process, and the development strategy is often profit-oriented.

After the clearance of the site, new urban programs will appear in an 'airborne style' which is based on the high-density and upscale principles, aiming at attracting high-class groups. The top-down decision-making process contributes to the short planning and construction period. The new development is often mixed by offices, hotels and luxury apartments.

The highly densified and multi-functional development will create a new centrality in the local level, which may intensify the urban pressure including traffic flows and increasing living costs. This trend will make the new developed area like an 'island', resulting in the physical condition of surrounding neighborhoods becoming obsolete and in need of replacement or gentrification.



1.2 CHINESE CONTEXT

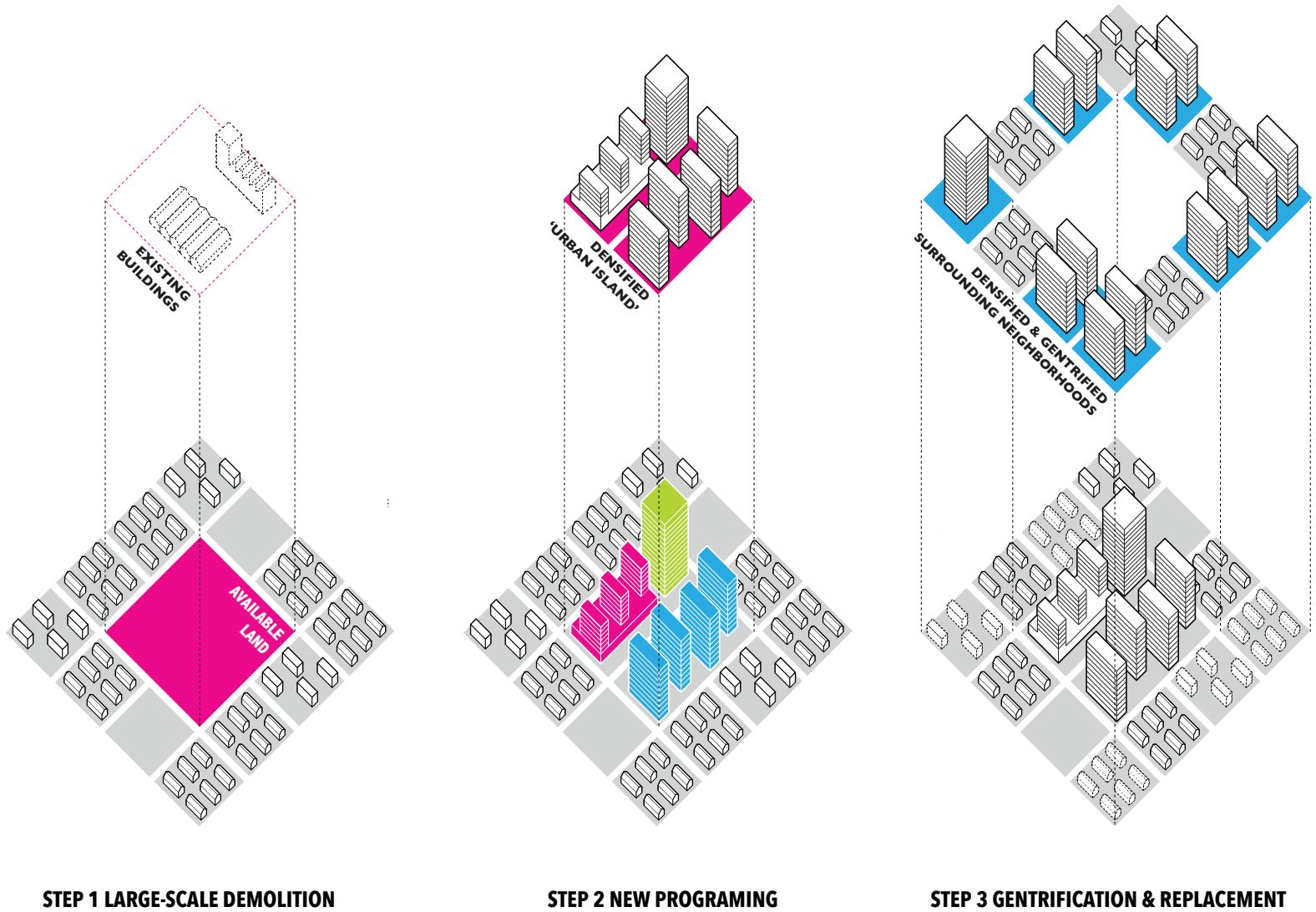


Figure 1.5: Three steps of the typical development mode in Chinese cities (made by author)

1.2 CHINESE CONTEXT

SIDE EFFECTS



Figure 1.6: Main side effects caused by the typical development mode (made by author)

It was exactly this development mode that has been playing a dominant role in the urbanization and modernization process in Beijing for the past decades. The result of the typical development mode appears to be highly modernized urban fabrics with improved infrastructure, presenting brand new urban image.

In fact, the local residents actually can not benefit from the new development. Because the physical condition of old surrounding neighborhoods still remains the same, at the same time, increasing amount of migrants attracted by the new development will result in rising housing and renting price, forcing local people to suffer from physical and social segregation. Eventually, driven by potentials and profit from the prosperous real estate market, new developers will take over the de-

caying areas from local people and force them to leave and make space for new programs.

This is such a tragedy for a city, especially those with historical and political importance, since there's no public participation through the whole process from decision-making in the beginning to the final implementation. Therefore, the real demands from the propel are neglected, and the new urban programs only target on specific social groups not for public.

As the result, there several side effects caused by this development mode- expensive housing price, losing identity, physical and social segregation, and planning process lack of public participation, etc.

1.3 PROBLEM STATEMENT

The typical development mode for redeveloping dilapidated industrial sites in urban area is unable to facilitate the general public.

During the industrialization process early in 20th century in most of Chinese cities, heavy industries with contamination were initially located in city periphery when they were founded. But nowadays, these industrial areas gradually became part of urban area due to the rapid and large-scale urbanization and city expansion. Since late in the 20th century, with decline of heavy industries and traditional manufacturing, there has been increasing number of derelict industrial areas with great potentials to be redeveloped and integrated into the city.

As for these industrial dereliction, the **typical development mode** mentioned before is adopted in majority of big Chinese cities in order to maximize the profit of government and developers. However, the mode is to promote the attractiveness of the place and target only on certain groups of people, while the demands from local residents are being neglected. As the result, the redevelopment is often **unable to facilitate the general public**. Therefore, it has been becoming an urgent need to come up with a collection of strategies both on city and local scales to tackle with this issue.

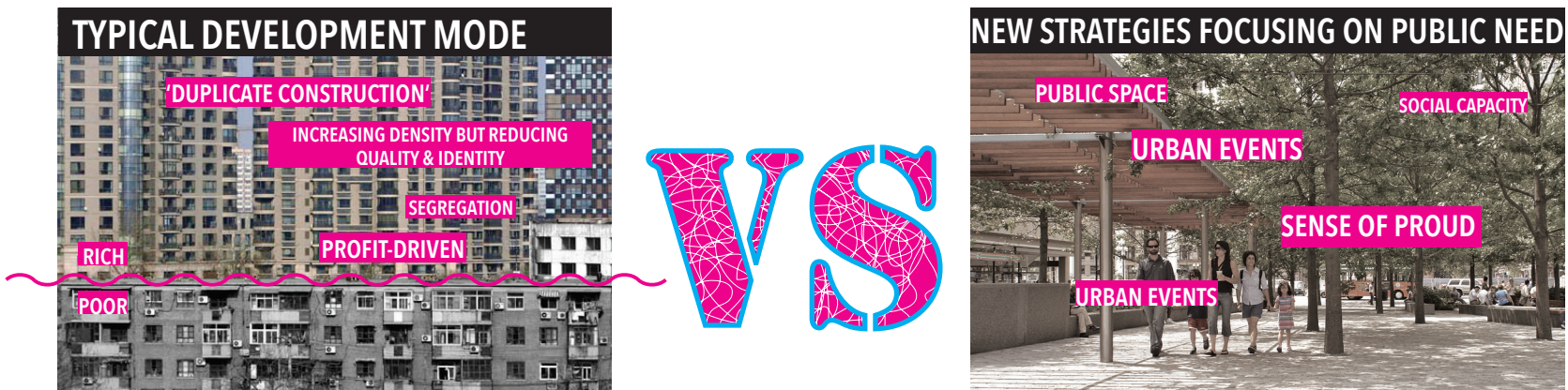


Figure 1.7: Conflicts between typical development mode and public needs (made by author)

1.4 RESEARCH QUESTIONS

MAIN RESEARCH QUESTION

What alternative strategies should be used to redevelop derelict industrial areas with value of urban heritage (industrial heritage) in Beijing, balancing the emerging needs from both the city and local residents to tackle with socio-economic decline and to realize spatial and economic transition?

SUB-RESEARCH QUESTIONS

1. What is the value of industrial heritage in historical and cultural aspects?
2. What are the emerging needs from the local residents when there is socio-economic decline left by industrial dereliction?
3. What are the emerging needs from the city of Beijing during the period of industrial decline?
4. What kind of transition is needed based on the existing spatial and architectural condition?

1.5 AIMS OF RESEARCH

AFFORDABLE HOUSING

With the rapid expansion of some big cities, the housing price of some big cities has experienced a crazy rise during last decade. This brought outstanding achievements to the developers and governments, but put majority of people into suffering from the housing price that is a lot far more than low-income even middle-income can afford. There is urgent need for the government to offer subsidies or implement corresponding policies to respond to this miserable issue.

SOCIAL CAPACITY & INCLUSION

'Social capacity is people's ability to work together to organize public relationships within their communities.' Whereas unemployment is usually a big issue left by the decaying industries. The re-programing of the derelict industrial areas do provide new jobs, but only for certain groups of people not for those who are less educated and lost their jobs in the former factories. They are not competent for new jobs related to new industries. Therefore, there's the need of training institutions to building up social capacity.

Additionally, new urban development will attract new work force which mainly consists of high income group and middle class. The aim of the regeneration program is to promote the social inclusion of the old and new residents, and create a harmonious cultural integration instead of replacement.

PUBLIC SPACE & URBAN EVENTS

The aim of urban regeneration is not to build a new urban district within the former boundary of the factory, but to eliminate the border and give this area back to the city. Therefore, the space for public use will promote the integration in spatial point of view, connecting different urban functions and fragments. Furthermore, the new development with public space will better facilitate the surrounding neighborhoods and new migrants at the same time, creating place for the general public instead of an isolated 'urban island' only for certain group of people.

ECOLOGICAL URBANISM (SUSTAINABILITY)

With rapid urbanization process in the city, the living area is becoming increasingly dense, and the large-scale exploitation of land result in severe damage to ecological system of the city. So the need for ecological urbanism is quite an urgent need. Even small intervention can contribute to the ecological urbanism, such as urban more urban catchment and green infrastructure within city..

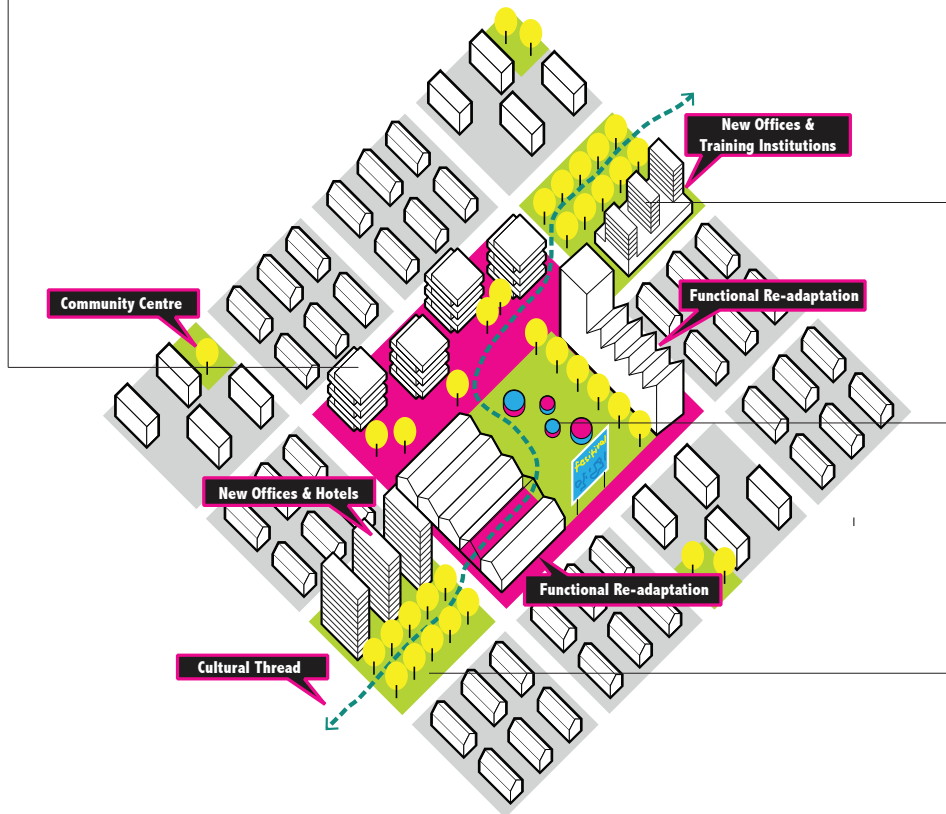
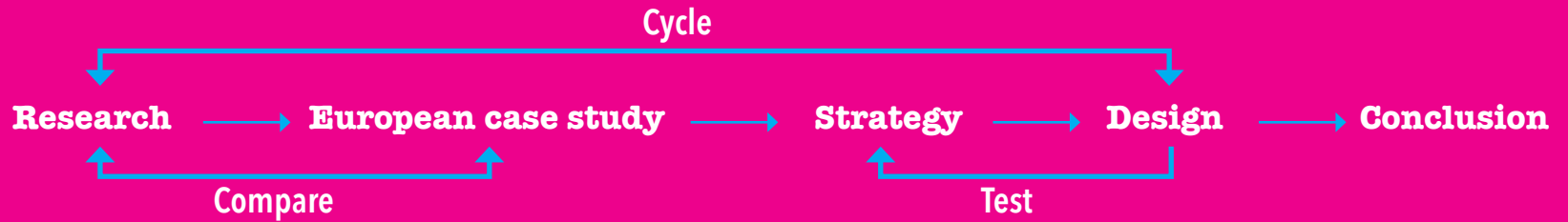


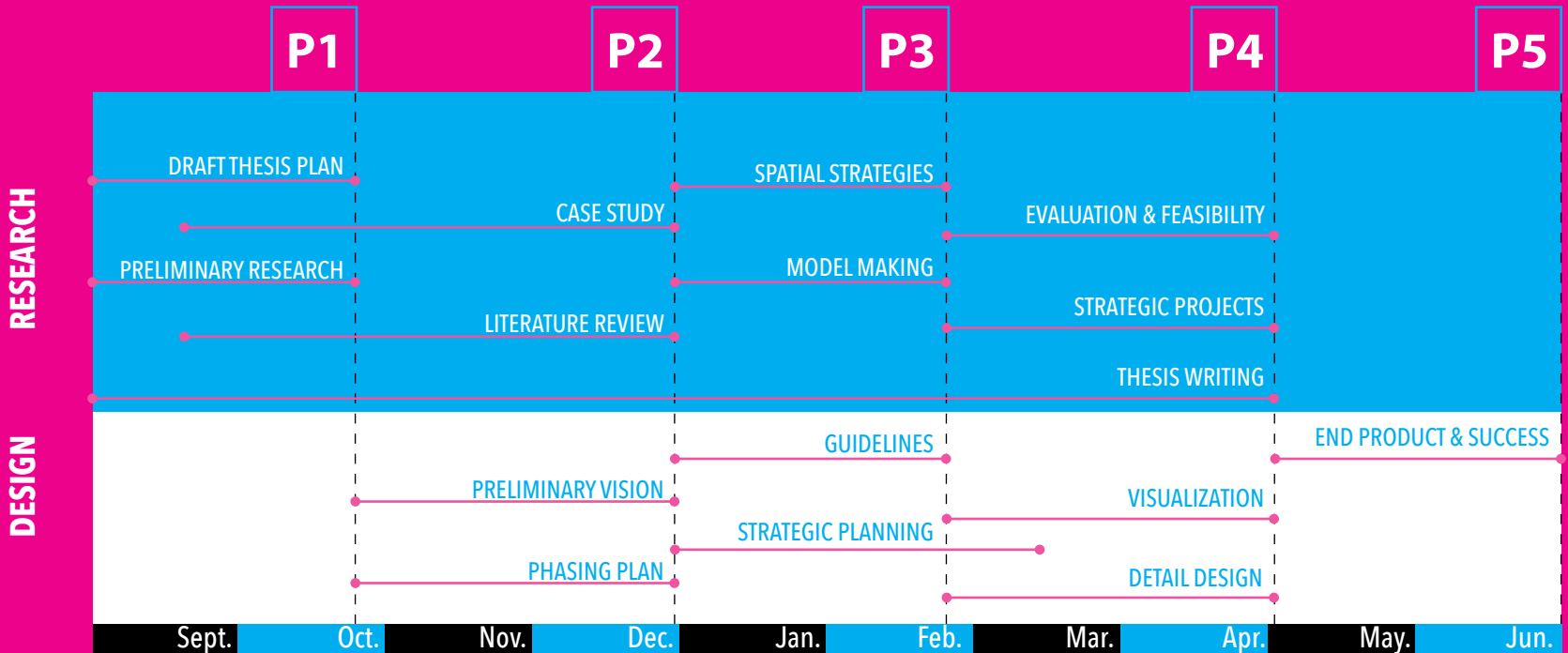
Figure 1.8: The ideal model of urban regeneration in decayed and dilapidated industrial site (made by author)

1.6 METHODOLOGY

STUDY PROCESS



TIMETABLE



1.7 SOCIAL AND SCIENTIFIC RELEVANCE

SOCIAL RELEVANCE The renaissance of industrial dereliction has been put on the top of agendas for the future development of some old industrial cities. Especially for Beijing, which is described by Li and Zhao (2010) as the pioneer city of the whole country in the field of industrial heritage preservation (ZHAO, B. & LI, K. 2010) for preferable conditions for adaptive re-use. Since both the quantity and building quality of the manufactures in Beijing helped a lot to contribute to the achievement, creating scale effect. Moreover, to mitigate pollution and ensure a nice city image, a number of heavy industries have been moved out from urban area and left available super-sized workshops and free land for re-programing. At the same time, under the encouragement by the government for the cultural economies, the creative and cultural industries developed rapidly, and transformation and re-use of those industrial buildings have found their popularity in those abandoned places where physical remains are still delivering distinct cultural and spatial identity and uniqueness, which is regarded as the perfect habitat for creative class and pioneering artists.

SCIENTIFIC RELEVANCE

In western countries, the de-industrialization process of some old industrial cities started decades earlier than Chinese cities, there are a number of successful precedents as milestones in the field of industrial heritage preservation, especially in the Ruhr in Germany. While in China, there are some achievements of adaptive re-use of industrial derelictions, such as Beijing 798 Art Zone and 751 Factory D. PARK, however, majority of those cases are nothing more than imitated work of western experiences and approaches. As a matter of fact, ideas and strategies are often born from specific site study, and Chinese cities have completely different urban context and much more complex situation than those of western cities. Therefore, the research focusing on the preservation and re-use of industrial heritage specifically in Beijing context will deliver an ideal model that could be learned for other cities in China, functioning as the 'weather vane' in urban transformation and de-industrialization process in the whole China.

PRELIMINARY ANALYSIS

PART

2.

2.1 SITE LOCATION

The site chosen for the project is Shougang Group- the largest and most important steel production industrial complex in Beijing, which has witnessed the history of heavy industry development in China since it was founded in 1919. Enormous contribution to the city development was made by this huge company which has been functioning as the pillar of local economy. In the last two decades, there has been a recognition during urbanization process in China that the environmental issue should be put on the top of the list, and the old industries with contaminant were seen as tumors in the urban environment and the potential threat to the future urban development.

In 2004, the government decided to move the Capital Steel Complex to another city close by, in order to ensure a good air quality and a highly urbanized city image to welcome the 2008 Olympic Games. Then the factory has been reducing the production until it halted in 2010, which indicate the end of a grand age of this steel industrial area.

Therefore, how to develop the derelict industrial land with such an unique historical and cultural value has become a hot issue. A strategic planning balancing preservation of the industrial heritage and implementation of new urban functions in a ecological way has become an urgent need.



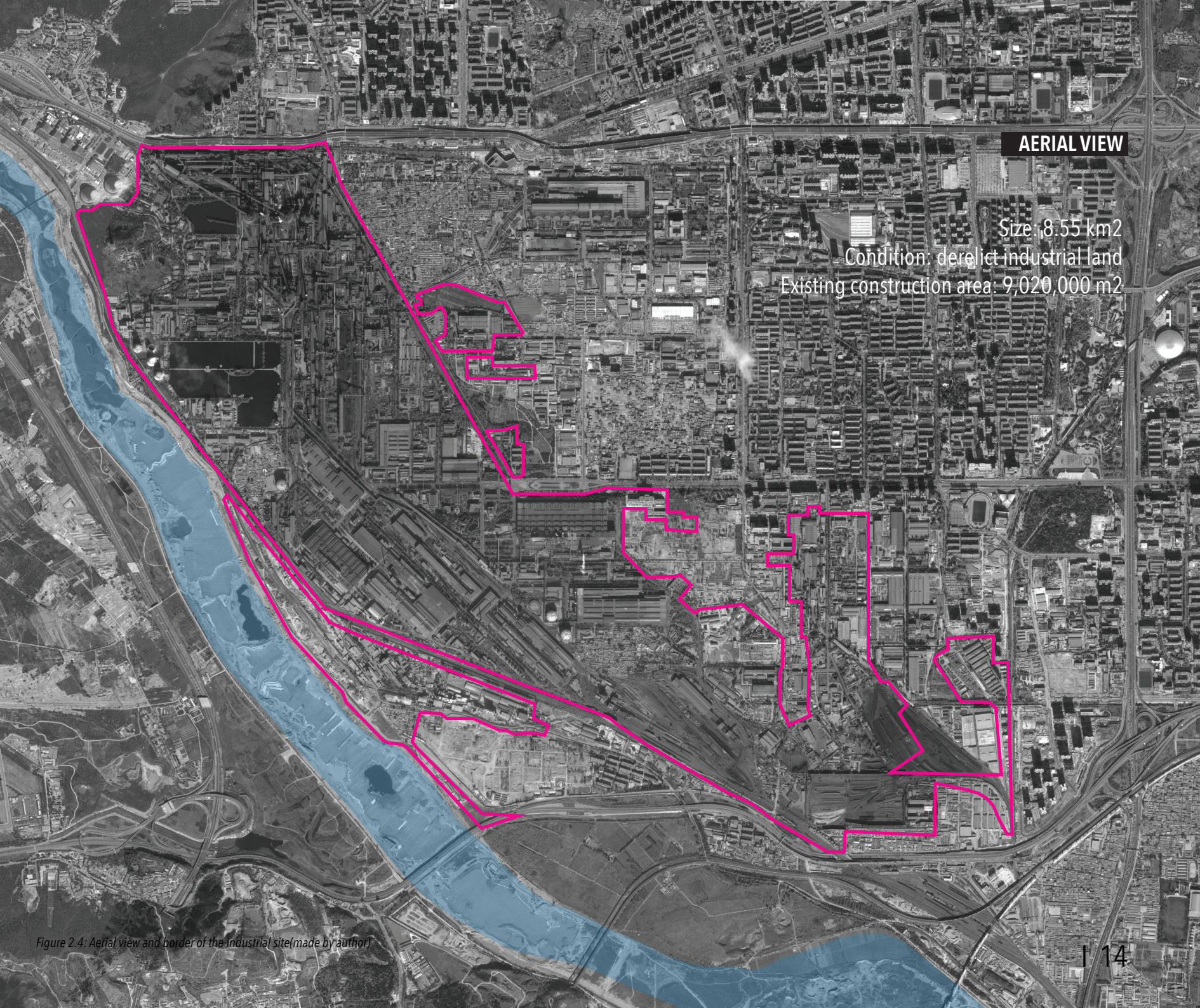
Figure 2.1: Aerial view of former cooling pond (source: Flickr)



Figure 2.2: Super-sized workshop (source: Flickr)



Figure 2.3: Electricity plant (source: Flickr)



AERIAL VIEW

Size : 8.55 km²
Condition: derelict industrial land
Existing construction area: 9,020,000 m²

Figure 2.4: Aerial view and border of the industrial site(made by author)

2.1 SITE LOCATION

SCALE COMPARISON

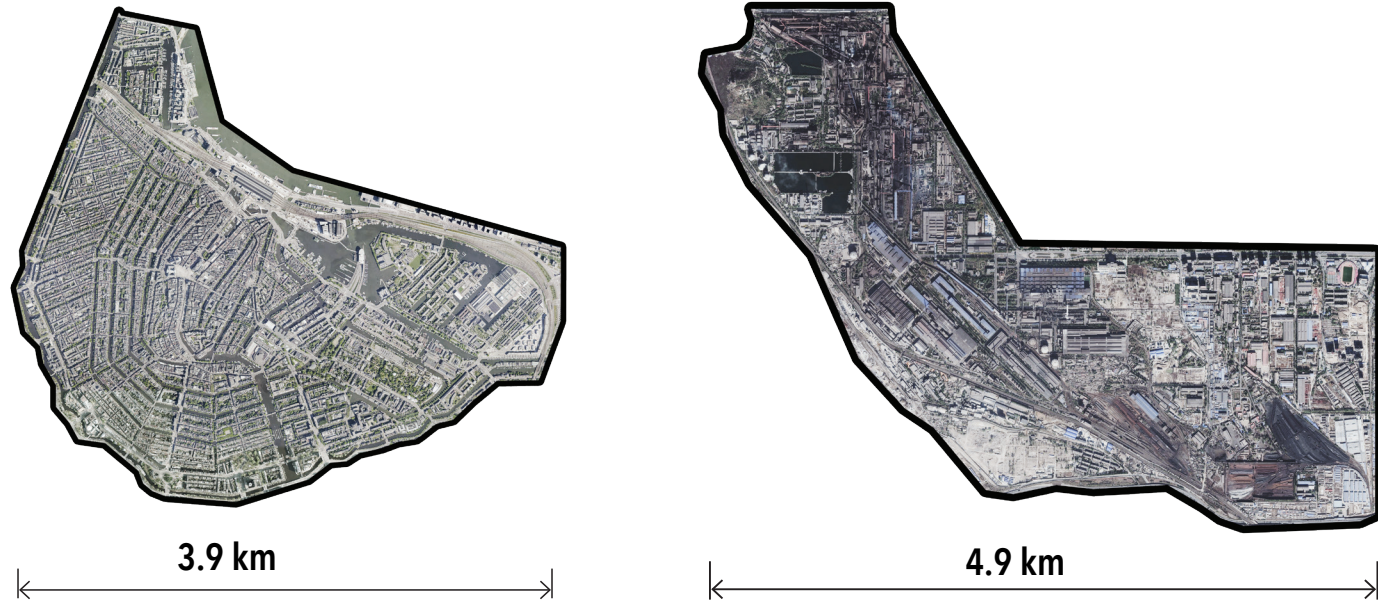


Figure 2.5: Comparison of the size between project site and Amsterdam Center (made by author)

Comparison Area: 8 km²

A comparative diagram shows that the area of the project site is approximately equal to Amsterdam Centrum, giving a better impression about this huge-sized industrial dereliction and also architectural scale.

2.1 SITE LOCATION

DISTRICT INTRODUCTION

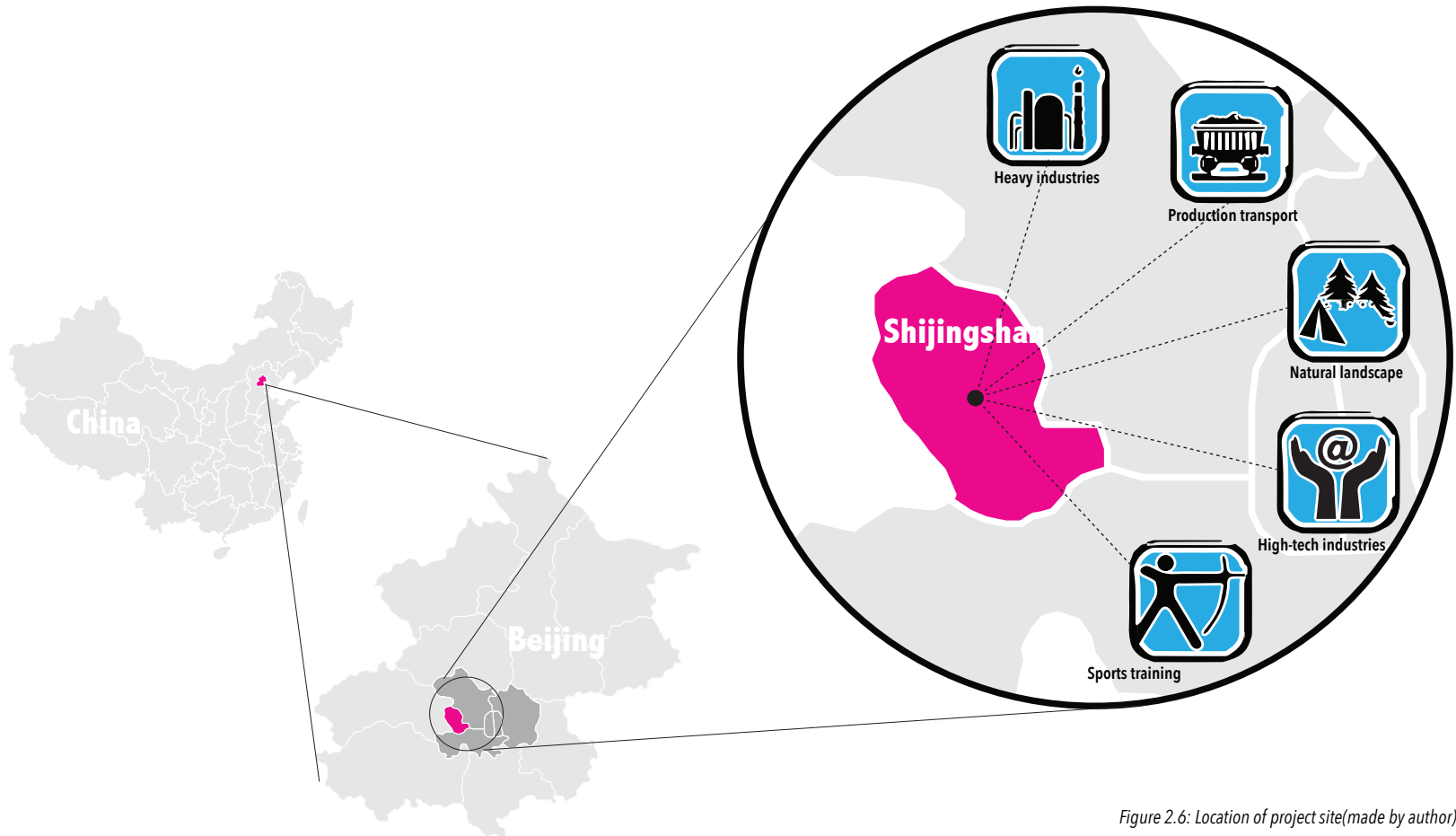


Figure 2.6: Location of project site(made by author)

Shijingshan district where the chosen project site is located is one of the six main urban districts of Beijing, and it has been known as the traditional industrial area with preferable location and excellent accessibility, as well as the base of some technology industries and sports facilities.

2.1 SITE LOCATION

GEOGRAPHIC LOCATION

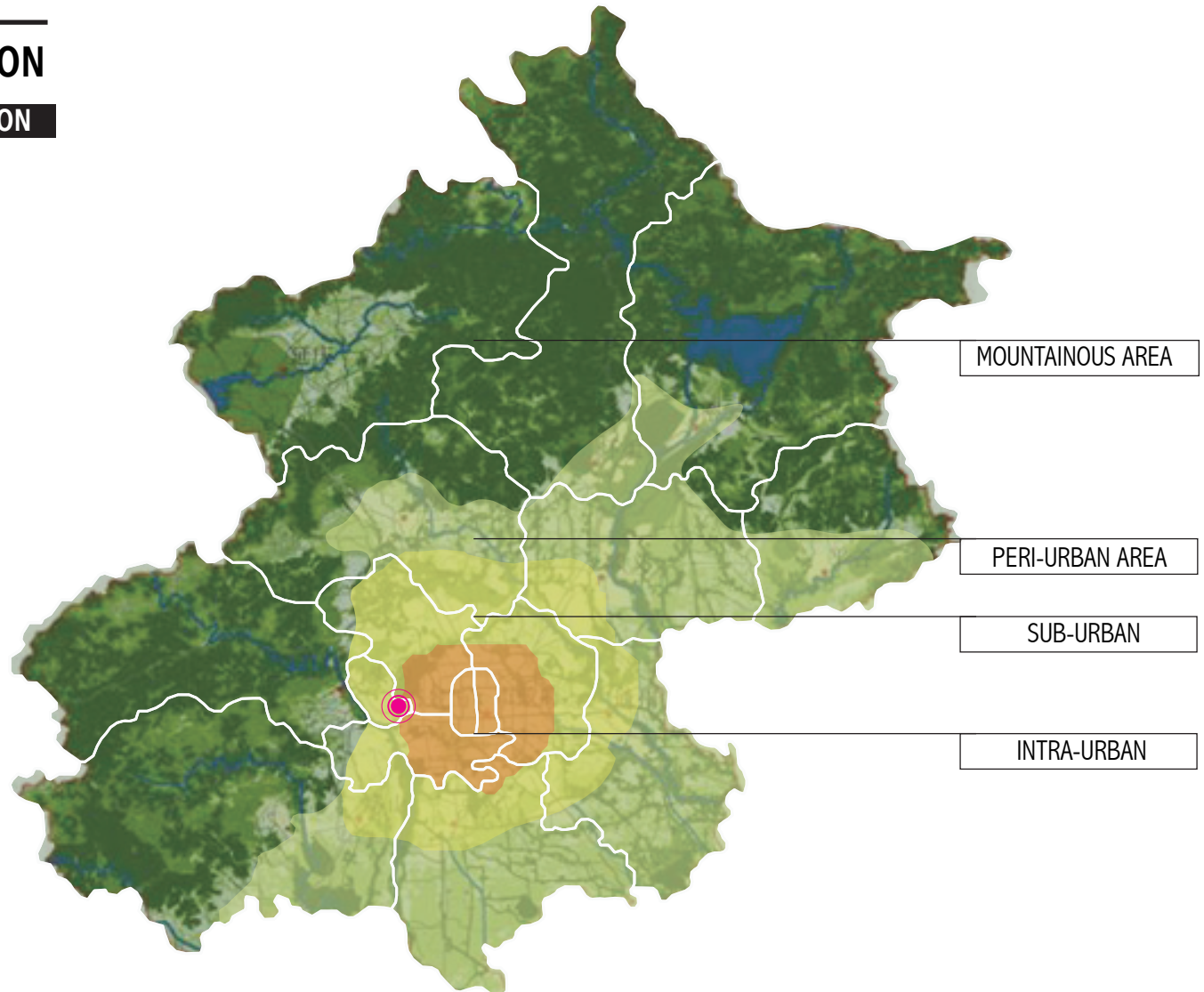
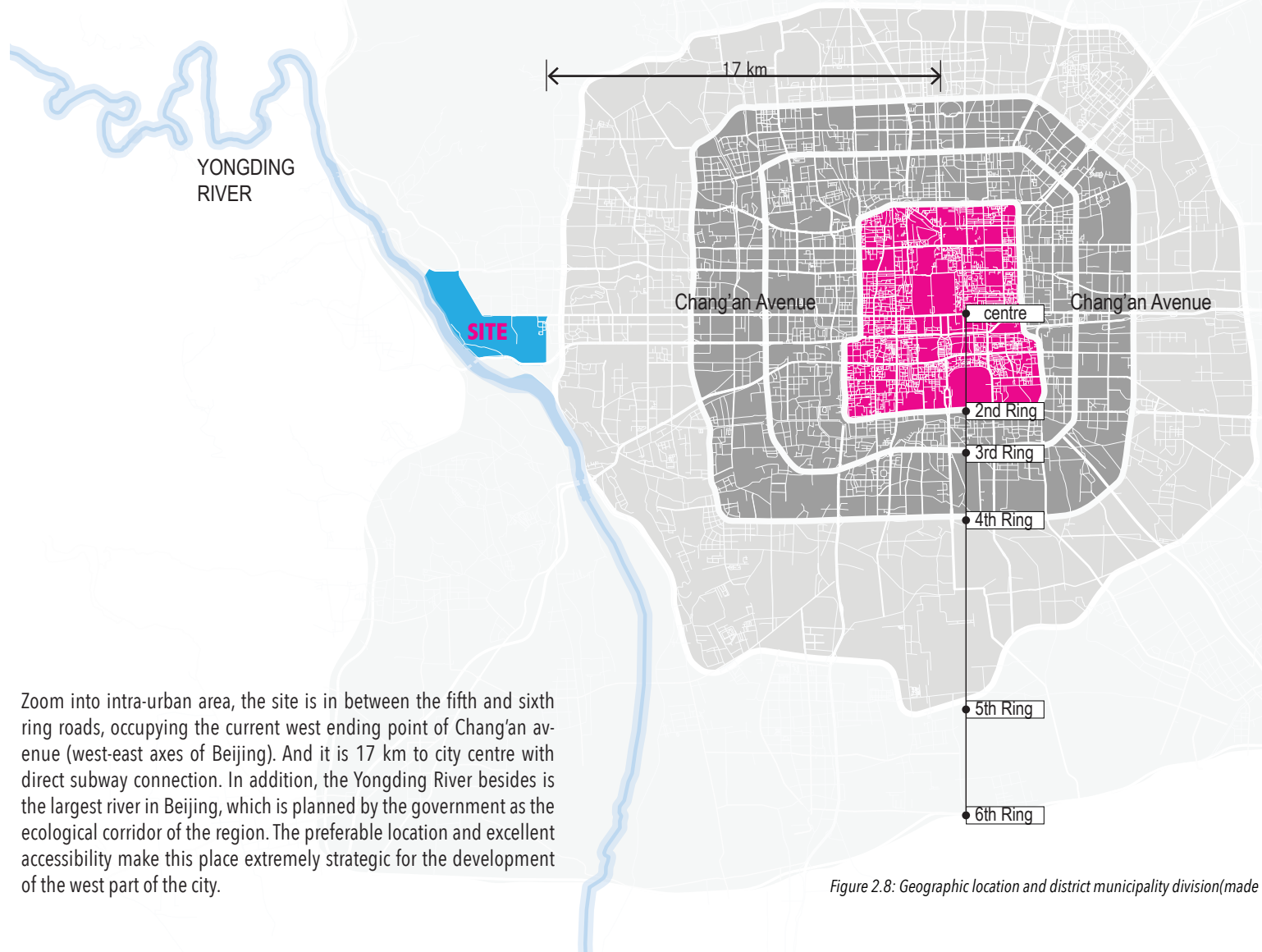


Figure 2.7: Geographic location and district municipality division(made by author)

The project site is on the border of the intra-urban area. The west side is huge mountainous area, with natural landscape, forests and also some cultural heritages. Located in-between the urban and natural landscape, the site has great potential to make use of both resources to realize a flexible and feasible re-programming.

2.1 SITE LOCATION

INTRA-URBAN SCALE

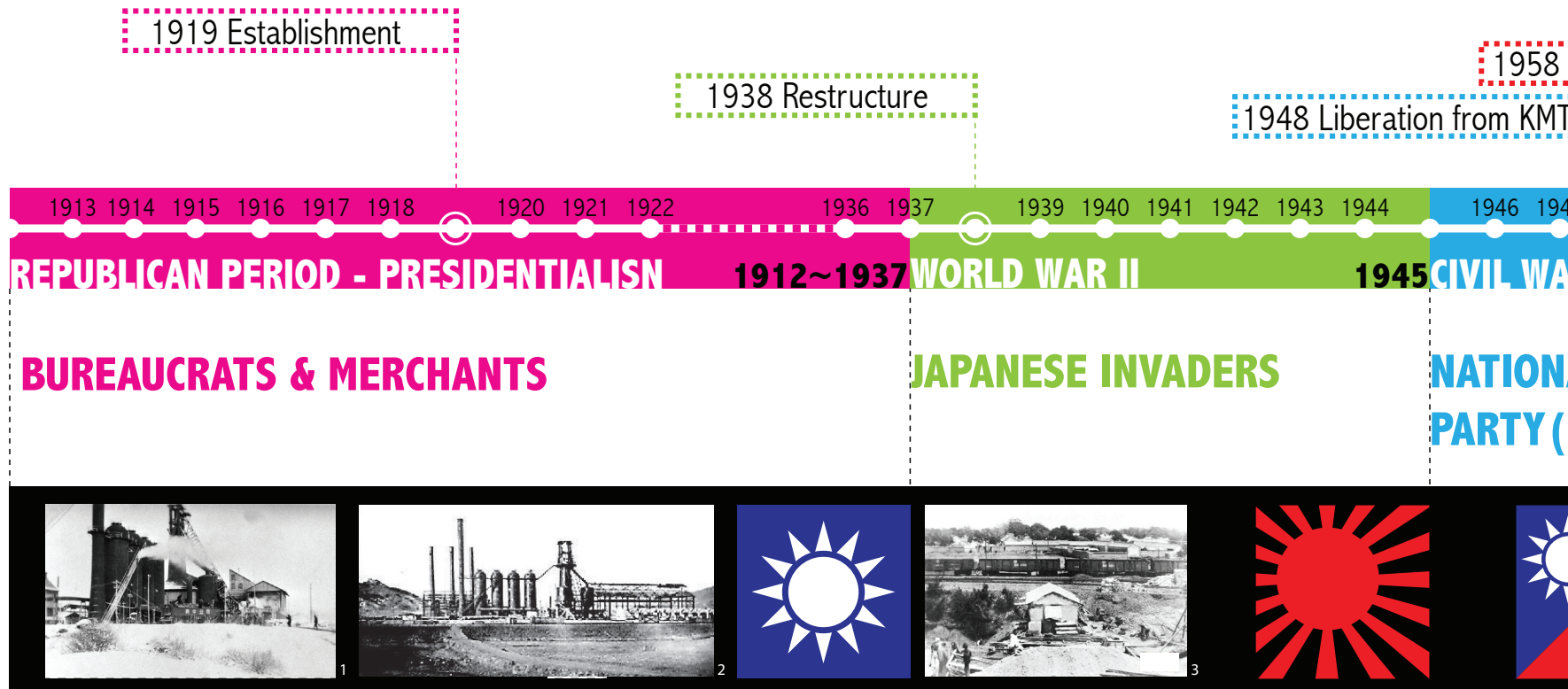


Zoom into intra-urban area, the site is in between the fifth and sixth ring roads, occupying the current west ending point of Chang'an avenue (west-east axes of Beijing). And it is 17 km to city centre with direct subway connection. In addition, the Yongding River besides the largest river in Beijing, which is planned by the government as the ecological corridor of the region. The preferable location and excellent accessibility make this place extremely strategic for the development of the west part of the city.

Figure 2.8: Geographic location and district municipality division (made by author)

2.2 CONTEXT

TIME LINE



- 1: 1921
- 2: 1928
- 3: 1939
- 4: 1st furnace production
- 5: 1st coke oven
- 6: 2nd coke oven
- 7: site plan rolling steel factory in 1969
- 8: 1970
- 9: 2008

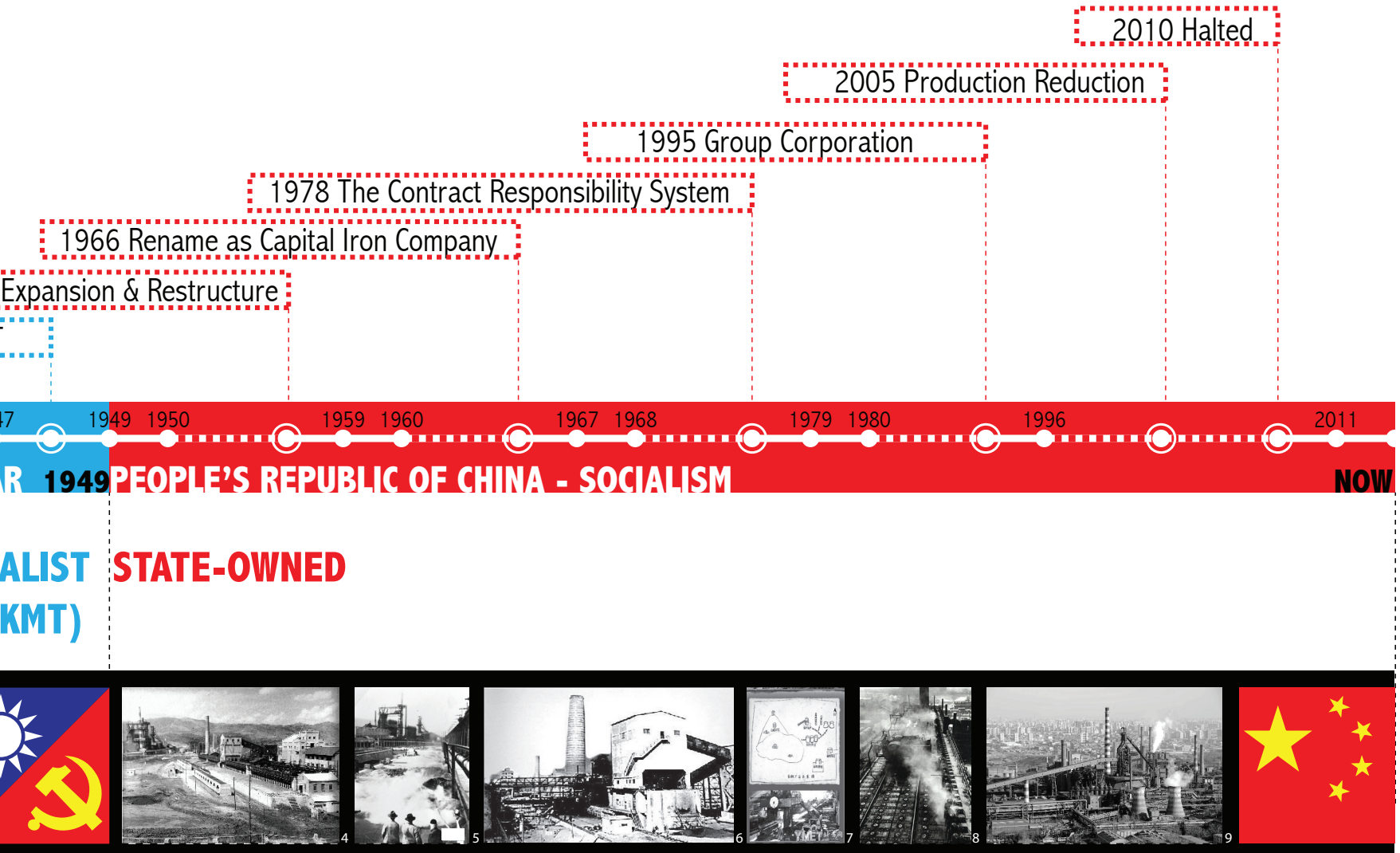


Figure 2.9: Developing history of Capital Steel(made by author)

2.2 CONTEXT

GROWTH PROCESS

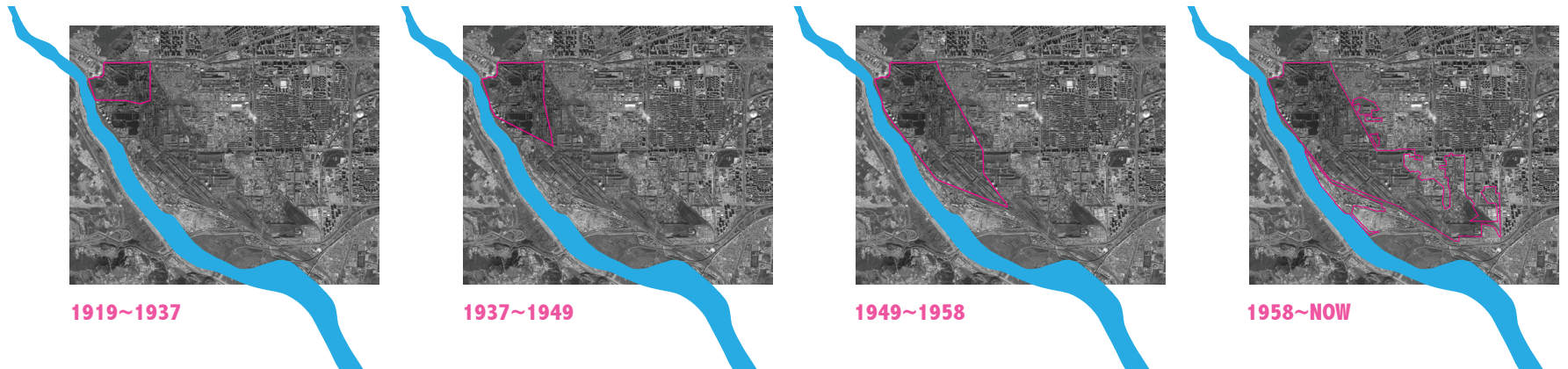


Figure 2.10: Land expansion of Capital Steel (made by author)

1919~1937: The factory was only a small plot of land beside the hill when it was founded, and the smaller cooling pond was dug in the very early time.

1937~1949: During the World War II, the factory was taken over by Japanese invaders, and the size was extended and some advanced production facilities were introduced from abroad. Unfortunately, most of them were destroyed by Japanese army when they retreated after failing the war.

Post 1949: The land of the factory was rapidly expanded to east direction with industrialization and urbanization process of Beijing. Until

now, the sub-factories are interweaving with surrounding residential areas, since the place once was distant city periphery but now part of the intra-urban area because of enormous urban expansion.

The factory grew along the river towards southeast direction. The river has been providing water to support the iron and steel production, and the contaminants from the factory has intensified the deterioration of ecosystem.

PHASE I 1949~1980

Character: modernization and comprehensive development of heavy & chemical industry
Consequence: emergence of huge amount of heavy industries in Beijing
Site: large scale expansion

PHASE II 1981~1994

Character: highlight the capital function, and restrict the development of heavy and chemical industry
Consequence: emphasize the development of technology-intensive industries, and rapid development of heavy industries
Site: technological innovation, improvement of productivity, and development towards group of companies in multi-fields

PHASE III 1995~2004

Character: stress the knowledge-based economy and sustainable development
Consequence: emergence of technology industries and service sectors, transition from traditional manufacture and industries towards technology parks and real estate
Site: conflict between heavy industry production and restrictions of urban development, iron & steel industry disappeared from the context of industrial development of Beijing since 2004 when Shougang was forced to move the production section away

Three Phases of Economic Development of Post 1949 Beijing

Figure 2.11: Three economic phases of post 1949 Beijing (made by author)

2.3 VALUE OF THE SITE

CULTURAL VALUE

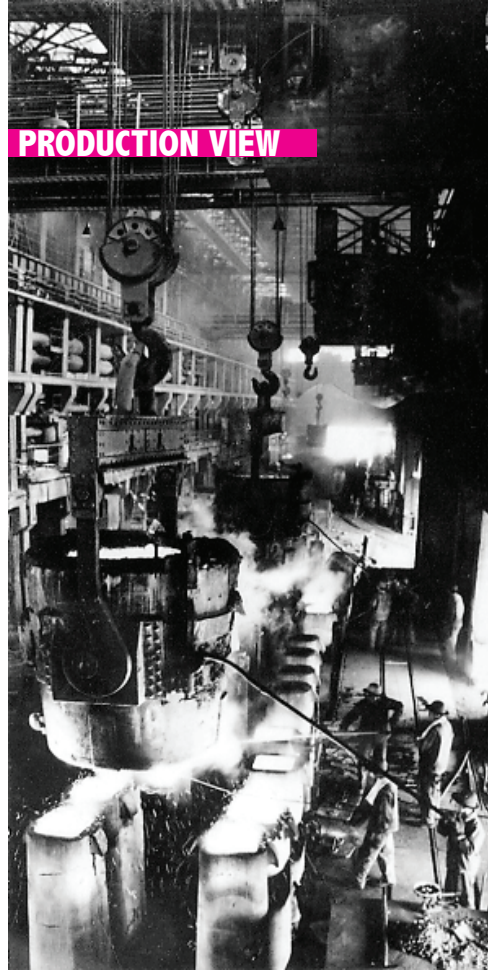


"I have been working in Shougang for more than 40 years, with 2000 pictures published to record its glorious history. But now it has been retired just like those former workers."

- 1st Photographer of Shougang



PRODUCTION VIEW



PROPAGANDA BOOK



WORKERS' PHOTO (1965)



POSTER (1972)



2.3 VALUE OF THE SITE

HISTORICAL VALUE

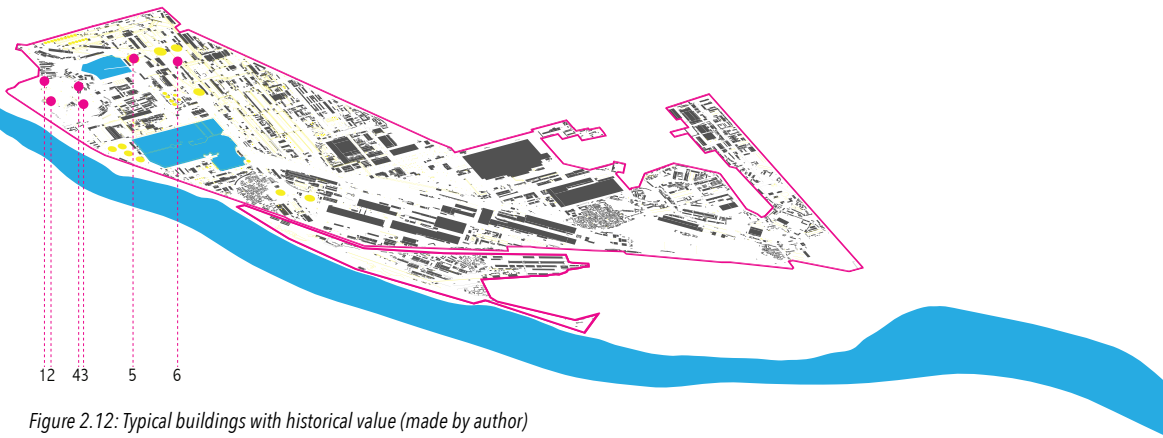
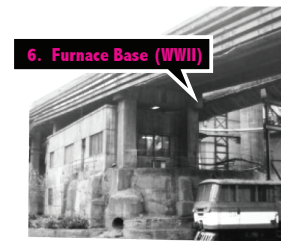
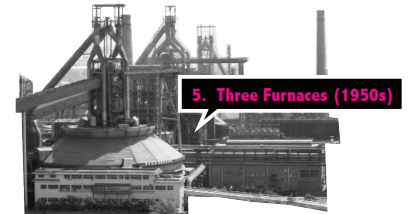


Figure 2.12: Typical buildings with historical value (made by author)

2.3 VALUE OF THE SITE

LANDMARK BUILDINGS

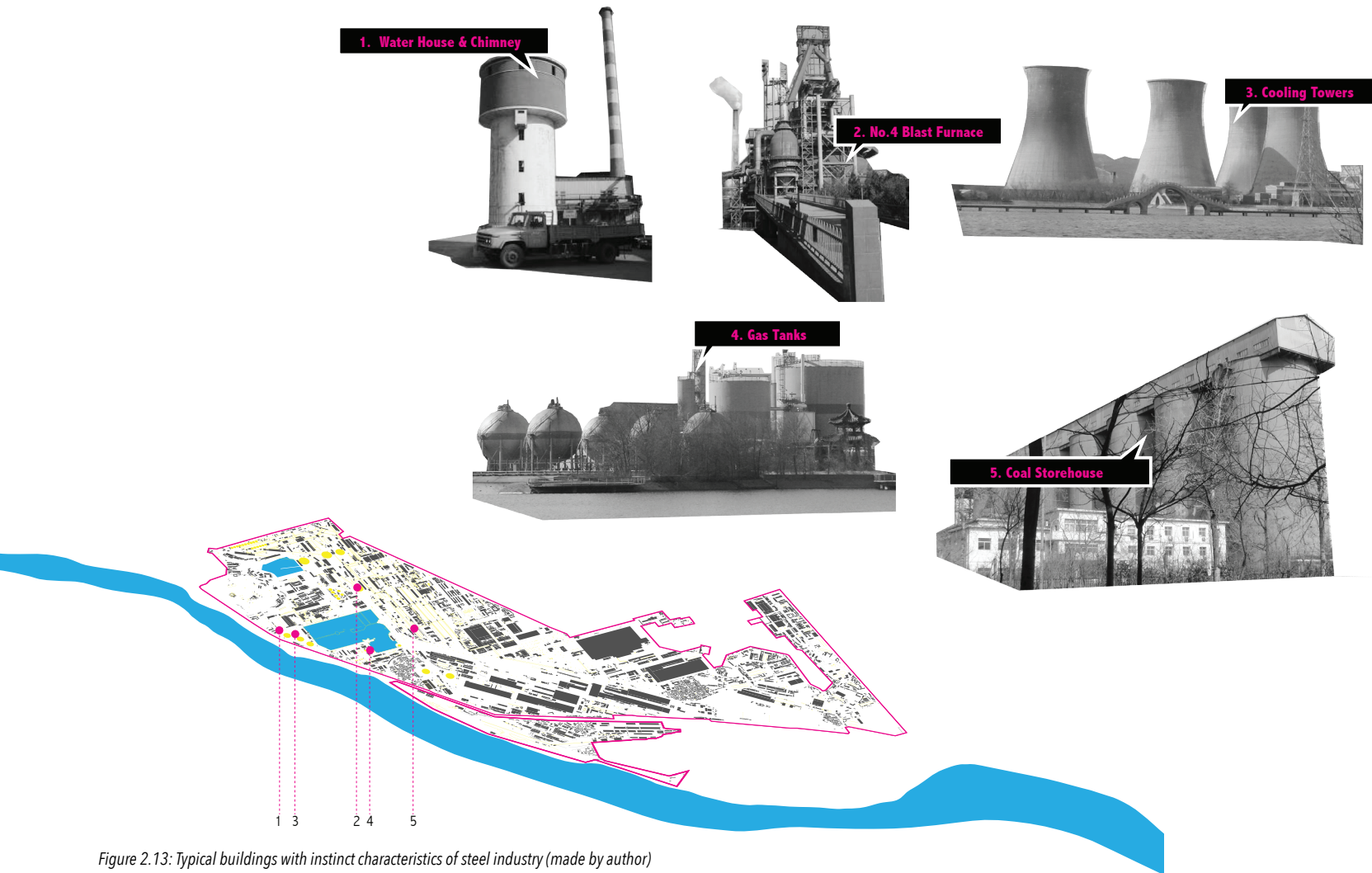


Figure 2.13: Typical buildings with instinct characteristics of steel industry (made by author)

2.3 VALUE OF THE SITE

RE-USABLE BUILDINGS

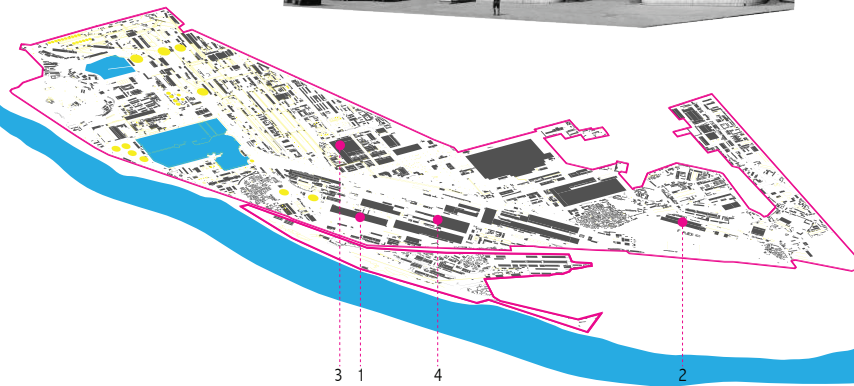
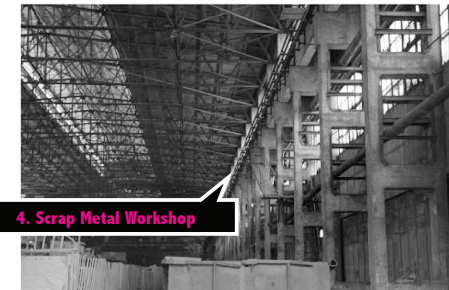
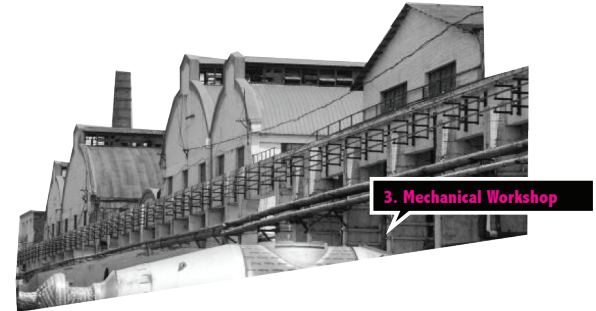


Figure 2.14: Typical buildings with re-usable value (made by author)

2.4 CURRENT ROLE IN THE CITY

DISTRIBUTION OF CENTRALITIES

The distribution of capital in the city is not balanced as shown in figure 2.15. There has been a concentration of resources and capitals in the north and east part of the city, whilst in the west and south the development remains a laggard where the project site is located. Therefore, the redevelopment of the site has the potential to stimulate the mobile capital to locate in the west and help to promote the poly-centric development mode of Beijing.

INFRASTRUCTURE NETWORK

It is the west ending of the metro line 1 and has potential to be the transfer point for further metro extension to the west. The ring roads and the intercity railway passing through make the site accessible in a regional scale. However, there is no passenger terminal of multi-mode public transport near this place.

ECOLOGICAL SYSTEM

The Yongding River besides the site is planned by the government as the ecological corridor of this metropolitan region, which will be the catalyst for redevelopment of the riverside areas. Moreover, there are two green belts surrounding the inner city area: one is the fragmented unbuilt areas separating the ten satellite clusters around the inner city, and the other is outer green belt between the 6th ring road and those clusters. As shown in the figure 2.17, with the strategic location in-between the two belts and accompanied by the ecological corridor planning, this place has great potential to function as the connection between the two green belts.

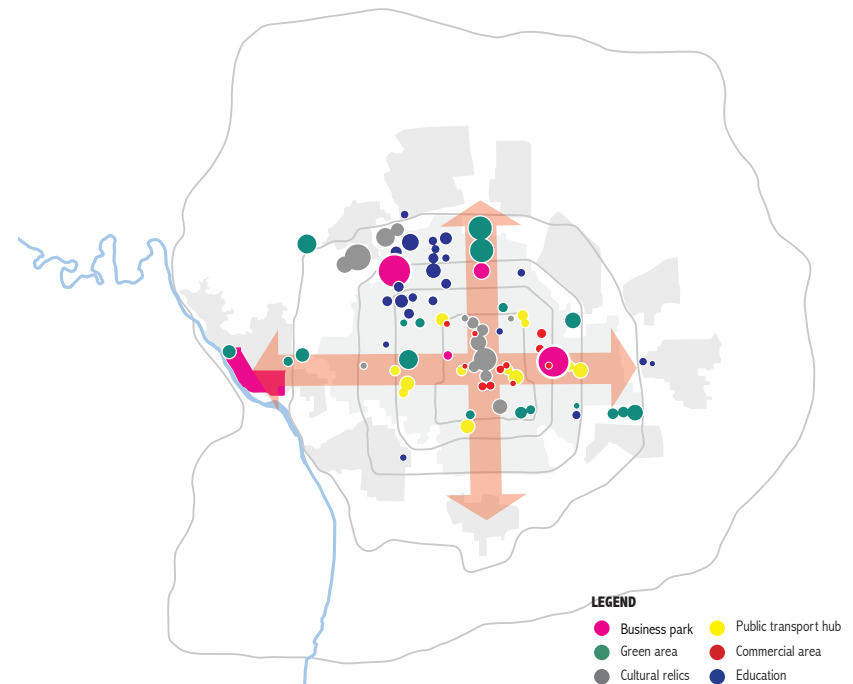


Figure 2.15: Distribution of centralities (made by author)

2.4 CURRENT ROLE IN THE CITY

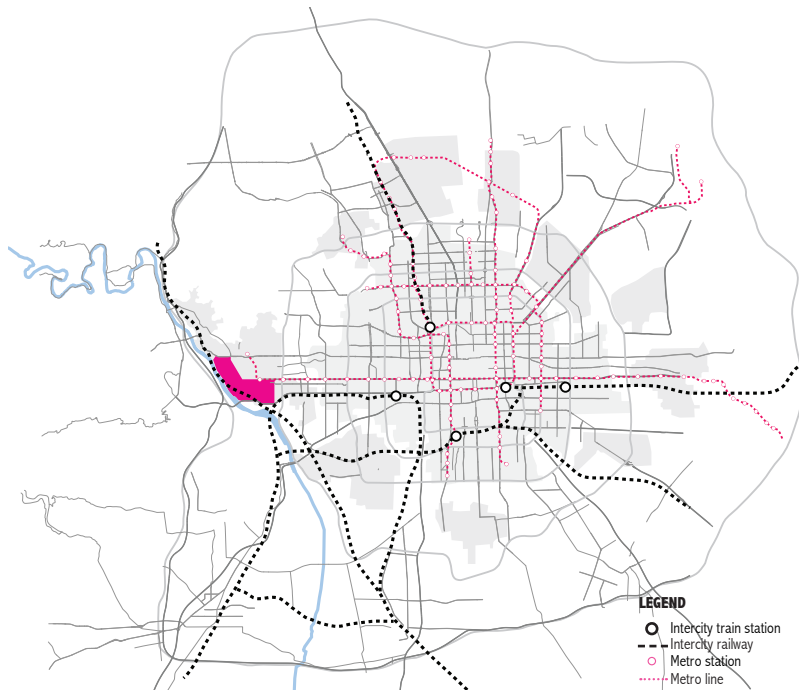


Figure 2.16: Infrastructure network of urban area (made by author)

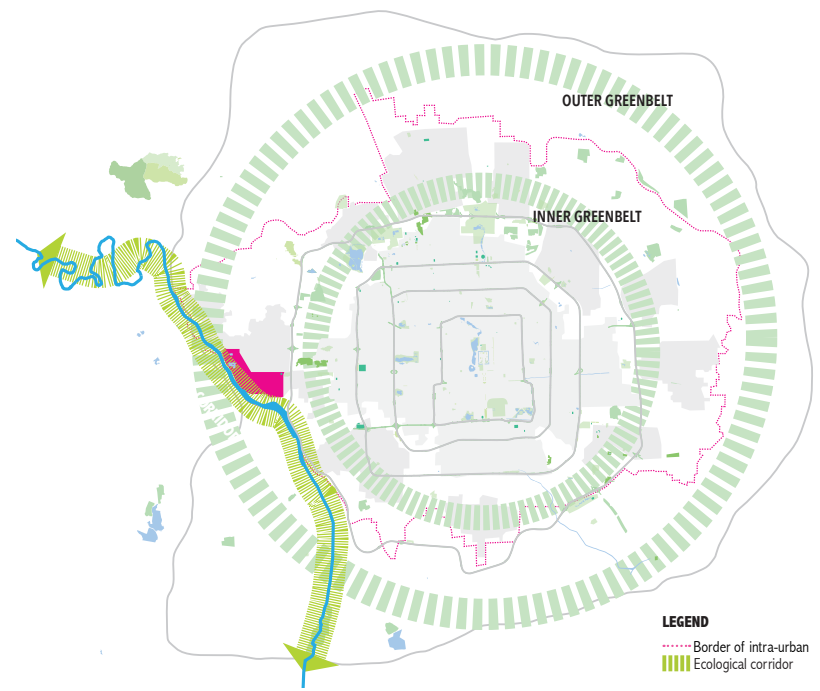


Figure 2.17: Ecological system of urban area (made by author)

2.5 LOCAL CONDITION

SPATIAL STUDY

The Zone I is characterized by the unique natural landscape with a 184m high mountain and two ponds. A number of historic relics on the mountain and buildings of traditional Chinese style give this area distinct culture identity.

ZONE I

The Zone II has the most distinct characteristics of steel industry, which has a concentration of main production facilities. It was the core of the factory.

ZONE II

The Zone III is characterized by a number of super-sized production workshops connected by elevated conveyor belts. Those building with large-scale structure can be spatially transformed to adapt to new programmes inside.

ZONE III

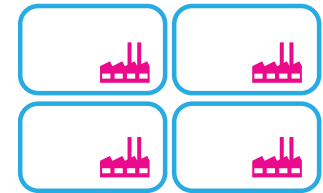
The Zone IV is the BH area with logistics and some accessory facilities. Without distinct characteristics, it's possible to demolish and redevelop the whole area.

ZONE IV

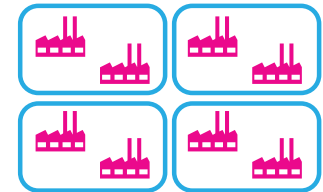
DENSITY



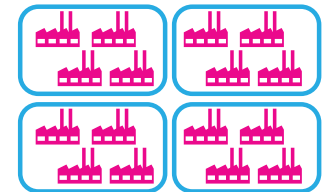
ZONE I



ZONE II



ZONE III



ZONE IV



BUILDING TYPE

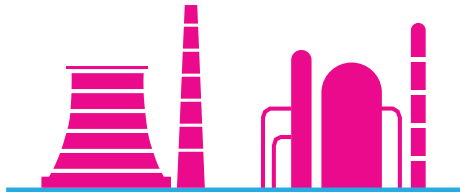


Figure 2.18: Characteristics of each zone (made by author)

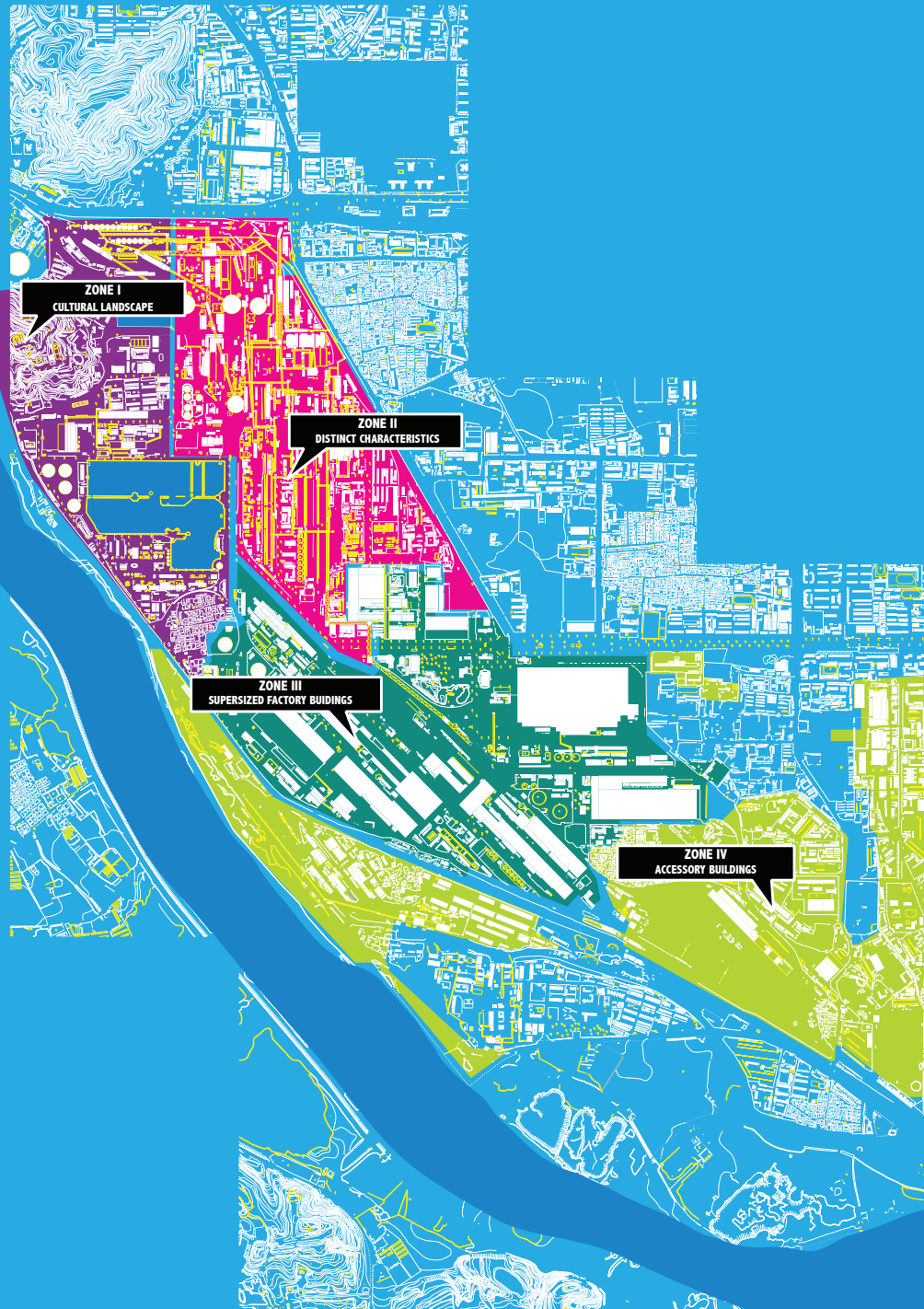


Figure 2.19: Zoning plan based on spatial quality (made by author)

2.4 LOCAL CONDITION

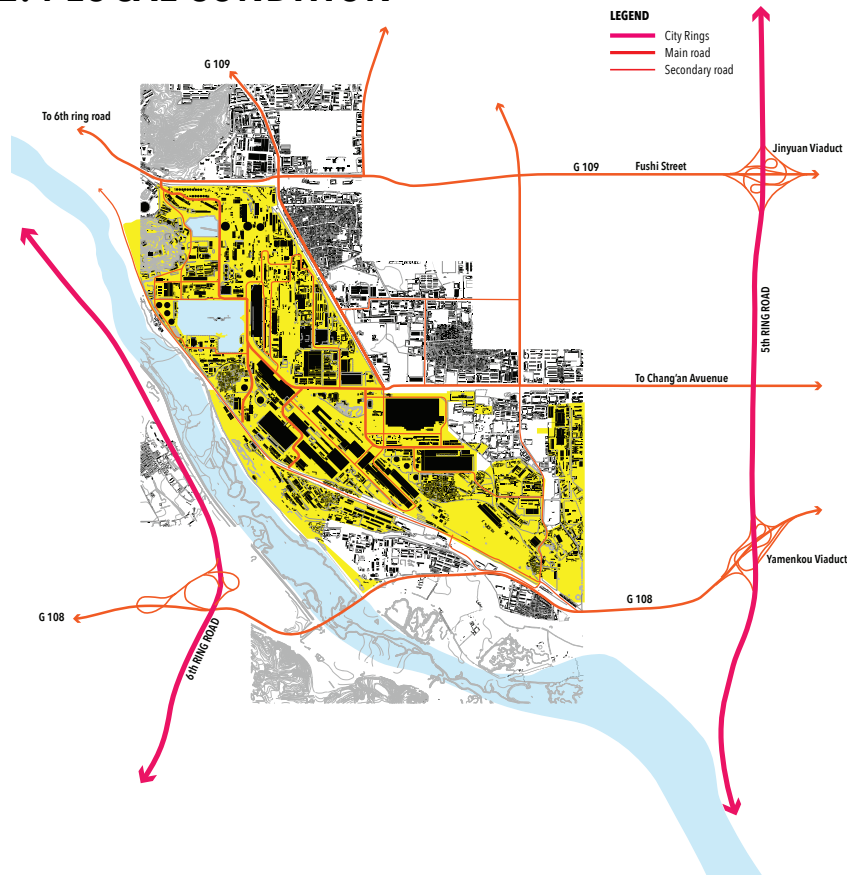


Figure 2.20: Car traffic system (made by author)

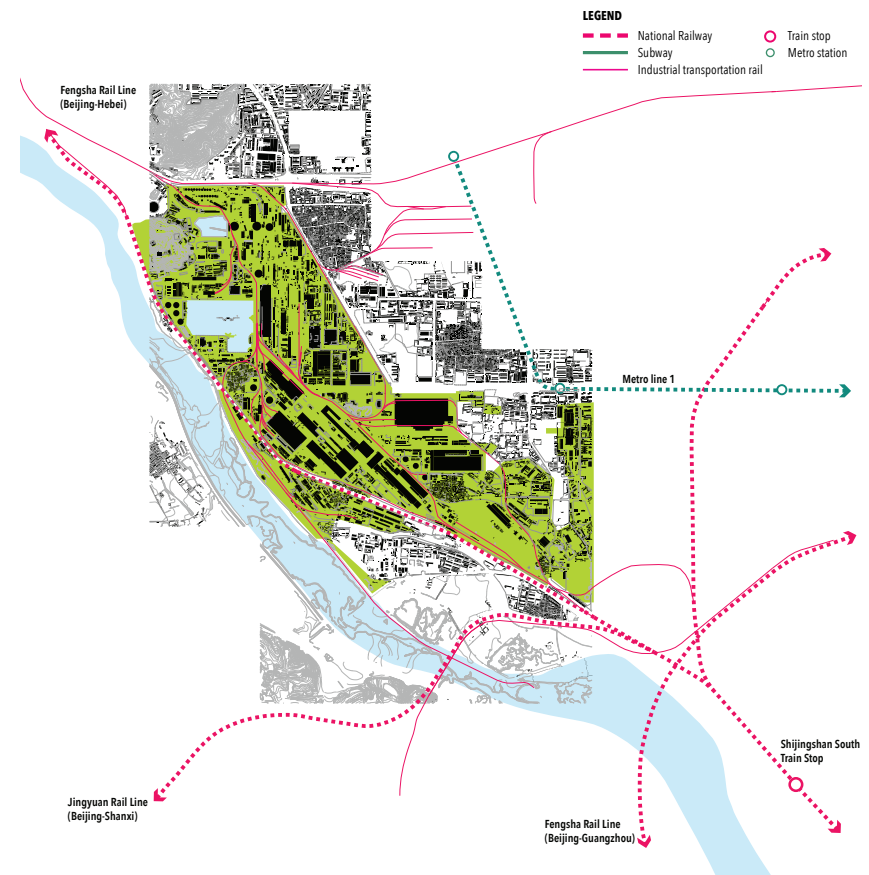


Figure 2.21: Railway and subway system (made by author)

Zoom into the local scale, the site is close to the exit ramps of both 5th and 6th Ring Roads (figure 2.20), and at the same time the Metro Line 1 reaches the east part of the site, making this place easily accessible from other parts of the city.

As shown in figure 2.21, there is also intercity train connection which is the national railway going along the site connecting Beijing directly to Hebei province, accompanied by the other two rail lines going to Guangzhou and Shanxi. But the train stop is not so close and has no link with metro system. There are also a number of industrial transportation railways passing through the site that connect each apparatus, presenting the production flow in the past time.

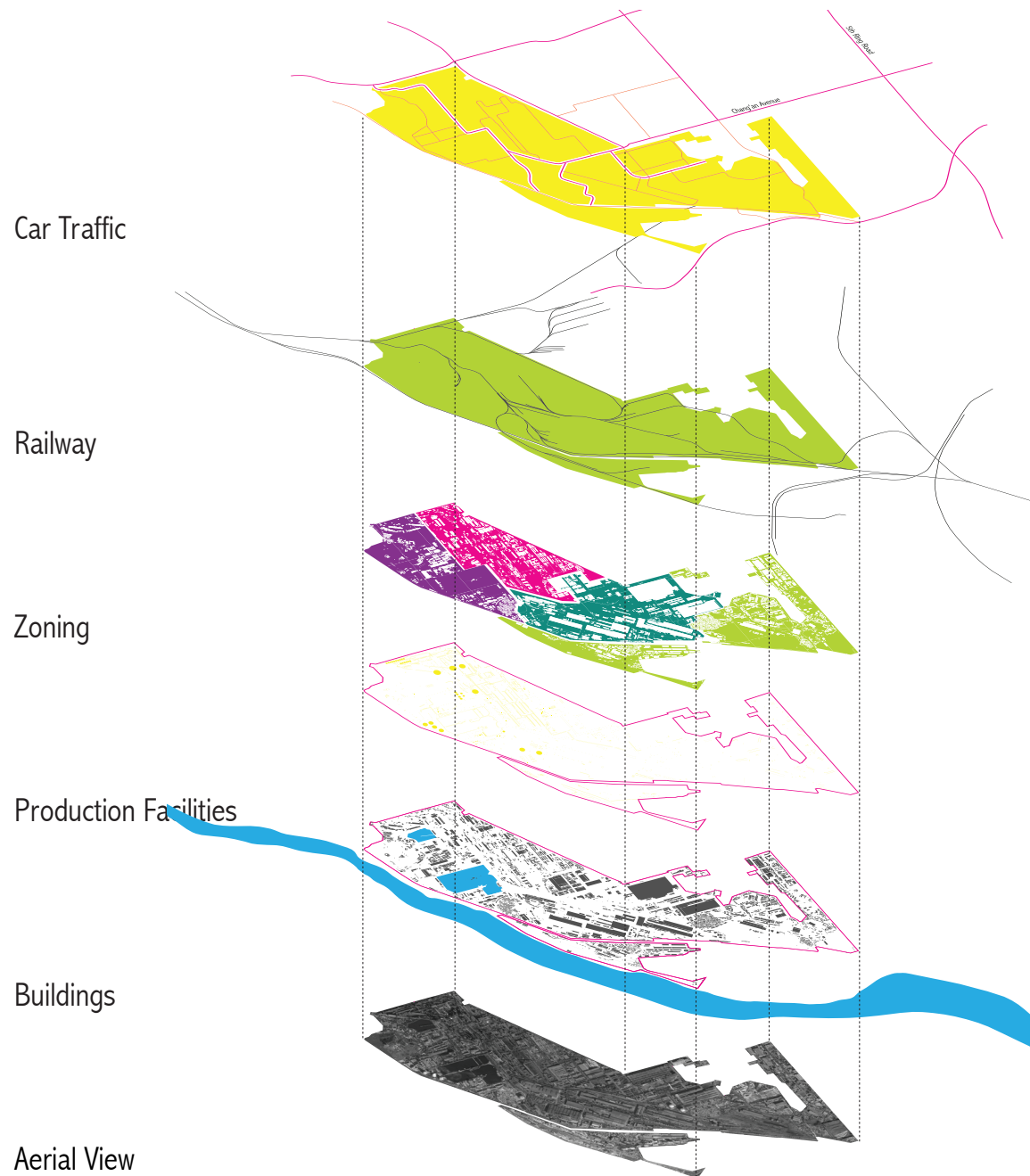
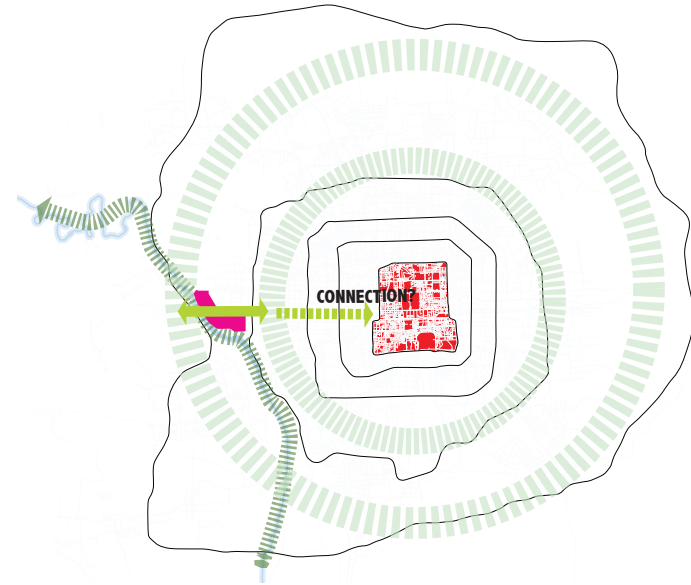


Figure 2.22: Layers of the site (made by author)

2.5 PROJECT OBJECTIVES

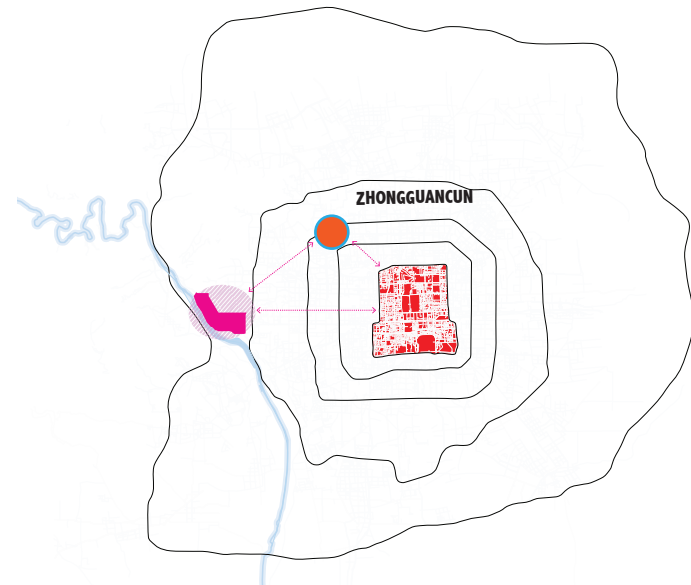
ECOLOGICAL RENEWAL & GREEN CONNECTION

The riverfront redevelopment is the crucial part of the project. A brand new attraction for future investment will be created by the ecological renewal of the Yongding waterfront. The strategy is to use green project to re-image this post-industrial area, at the same time to create connection between two green belts, integrating this area into the whole ecological network of the city. And in the long term, the green connection will be extended to the inner city area, and create green connections to different directions and integrate this area into the ecological network of the city.



VIBRANT ECONOMY

There has been a long time that Capital Steel acting as the pillar industry of local economy, even for the whole capital city. After it moved, this area has to experience the transition from heavy industry with contaminants towards clean and newly emerging industries, for instance high-tech sectors, knowledge-based industries, and creative industry. The Shijingshan District in which the site is located is known as the traditional industrial area with preferable location and excellent accessibility, and the government is planning the Shijingshan District as the first CRD (the Capital Recreational District) in Beijing, and along with the Zhongguancun Technology Park it will help to improve the de-centralization and balance distribution of mobile capitals in the city, forging a vibrant economic environment for new economies.



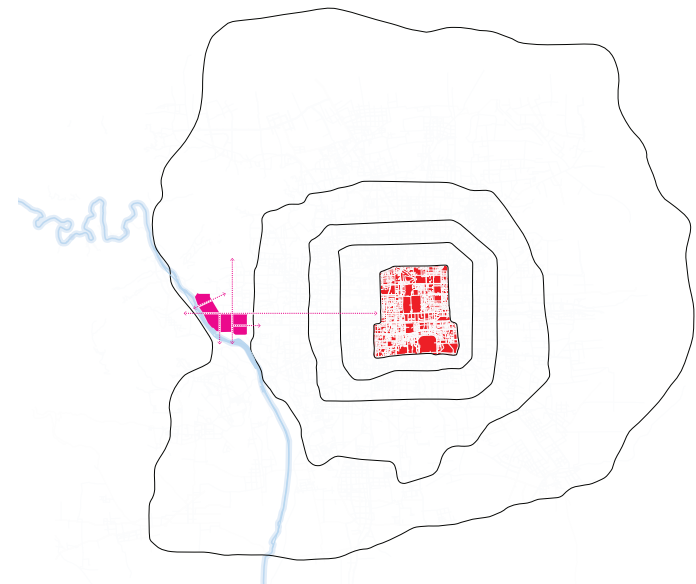
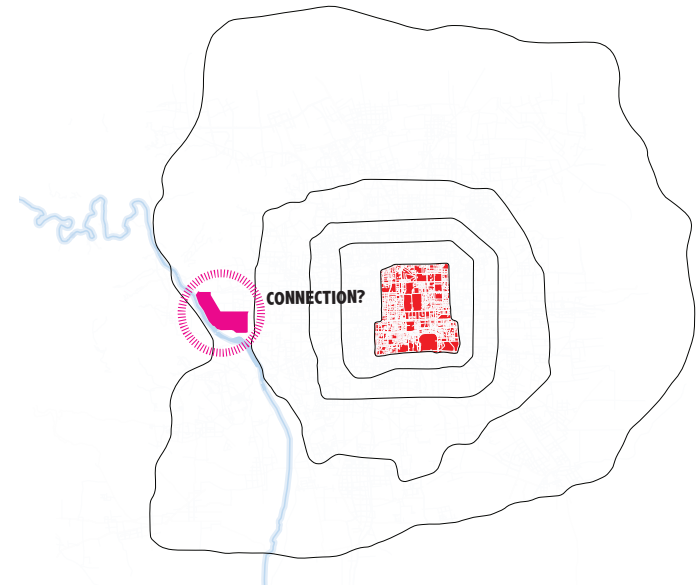
2.5 PROJECT OBJECTIVES

CULTURAL IDENTITY

The former Capital Steel has witnessed the development of Beijing for 93 years since it was founded. Given by the profound impact on the urbanization process of Beijing, the existence of the steelworks site has become an industrial heritage and also a cultural cluster itself. Therefore, finding a innovative way to preserve its both tangible and intangible identities is essential to redevelopment of this area. In this way, the unique identities will gain this place regional and even international attention.

SPATIAL TRANSITION

This 8 km² dilapidated land has great potential to be transformed into a mixed area with new urban functions and therefore integrated into the surrounding urban fabrics. A number of vacant industrial buildings can be converted, and realize functional re-adaptation. Moreover, the spatial quality outside buildings is also valuable and has instinct characteristic that should be preserved and adaptively transformed for new functions such as leisure and outdoor exhibition.



"But look what we have built... low-income projects that become worse centers of delinquency and general social hopelessness than the slums they were supposed to replace; middle-income housing projects which are truly marvels of dullness and regimentation, sealed against buoyancy or vitality of city life; luxury housing projects to mitigate their inanity or try to, with a vapid vulgarity.... expressways eviscerate great cities. This is not the rebuilding of cities. This is the sacking of cities."

Jane Jacobs, 1961

THEORETICAL UNDERPINNING

PART

3.

3.1 URBAN REGENERATION

Cities have been experiencing constantly change since the beginning of civilization. In response to economic and social factors they have grown, declined or undergone major restructuring (COUCH, 1990). Their economic base has been shifted from manufacturing towards service sector and knowledge-based industries. After WWII, the globalization trend has caused the spread of the capitalist and a dramatic change in the process of urbanization (NOBRE, E. 1994). In this global context, there has been de-industrialization and subsequent counter-urbanization emerging in developed countries. While in developing countries the consequence has been presented as the rapid industrialization process and urban explosion, as well as the popularity of so-called 'western' lifestyle. As a result, the problems arising from this trend have been of complexity including social, economic and environmental nature (OECD, 1983): physical decay, poor housing condition, spatial and social segregation, lack of public open space, traffic congestion and pollution, the destruction of the historical heritage, dereliction and deprivation (NOBRE, E. 1994).

3.1 URBAN REGENERATION

CHINESE CONTEXT



Figure 3.2: Demolition for creating 'available land' for new development (photo by Getty Image)



Figure 3.3: Dilapidated factory with reusable steel truss and interior space (photo by Edward Burtynsky)

What has been demolished is not only physical remains but also CULTURAL IDENTITY that cannot be repaired or reconstructed.

Urban regeneration in China has attracted vast attention around the world in recent decades. The globalization has increasing impact on the transformation of Chinese cities since China adopted the open door policy in 1978. Many cities in China have been struggling with the challenges of urban regeneration brought by restructuring of traditional economy and increasing competitions between cities for resources, investment and business (CHEN, Y. 2007). In the past few decades, there has been an increasing concern on environmental issues during the rapid urbanization process in most of developing countries. Especially in Chinese cities, the sustainability has been put on the top of agendas for urban development in the future. At the same time, the economic base restructuring resulted in decline and dereliction of some traditional industrial areas. For many commentators the urban 'new economy' lies at the heart of inner city restructuring (Scott 2000; Cooke & Lazeretti 2008; Hutton 2010; Van Heur 2010). It was assumed that the process of replacing old manufacturing-based industrial activities with new knowledge-based industries have brought those old industrial cities new networks of production and exchange, along with new kinds of workers that transform the industrial system of the inner city (GU, X. 2012). For those areas which were initially located in suburban when the industries were established, because of large-scale city expansion they have been gradually swallowed by urbanization wave and becoming fragments immersed in the inner city urban environment. In this context, the redevelopment of those derelict industrial quarters became great opportunities to accommodate emerging demands from modernization process in the city point of view and to promote urban regeneration in the local point of view. However, the typical developing mode in China only cares about profit but neglect the voice of the public. Furthermore, this mode is often real estate driven approach and starts from large-scale of demolition to make space for new programs, showing no respect to the existing value of the site and real demands of the local residents.

3.1 URBAN REGENERATION

CULTURE-LED REGENERATION

Culture-led regeneration is depicted as a high profile approach where culture is the catalyst for regeneration, and it aims to develop a new economy to deal with decayed urban areas. Culture is referred as "a source of prosperity and cosmopolitanism" as well as "a means of defining a rich, shared identity and thus engenders pride of place" (COMEDIA. 2003). The globalization trend has been reinforcing the popularity of culture-led urban regeneration which already spreads beyond the advanced western cities, and it did not take long for Chinese cities to embrace the trend. Especially in Beijing and Shanghai, culture is deployed as a key to bolster economic growth, driving a number of decayed urban areas including dilapidated industrial sites converted into cultural infrastructure. As Hall (2000) states:

"Cultural is now seen as the magic substitute for all the lost factories and warehouses, as a device that will create a new urban image, making the city more attractive to mobile capital and mobile professional workers."





Figure 3.4: Plaza in 798 Art Zone (photo from Internet)

3.2 INDUSTRIAL HERITAGE

DEFINITION

Since the early 1950s the research about the historical period of the industrial revolution was growing in most of the old industrialized countries. At the same time scientists and volunteers were starting to appreciate the built heritage of early industrialization period as important and worthwhile to preserve. Especially from the 1990s, this was and is a fast growing development, which one can identify for example by the expanding list of industrial heritage monuments on the UNSECO world heritage list. And in addition industrial heritage is developing quickly as an attractive part of the tourism industry (EBERT, W. 2008).

Industrial heritage does not just refer to the physical remains of the history of technology and industry, and it also includes intangible aspects such as industrial history and ideas of people, industrial lifestyles, etc. The industrial heritage of a region is an aspect of its cultural heritage. In other words, it is all about identity of the place, encompassing machines and buildings in which they were housed as well as the fabrics of the changing society.

Figure 3.5: Zeche Zollverein (photo by Ruhr Tourismus / Joachim Schumacher)



3.2 INDUSTRIAL HERITAGE

ADAPTIVE RE-USE

As a sort of resource, industrial heritage was not simply discarded or protected, but is being widely involved in modern economic activities and being combined with new economic form (XU, Y & CAO, Y. 2012). The preservation of the industrial heritage constitutes important cultural objectives, not only because it enlarges the sense of community, but also because it constitutes a sustainable approach, once it encourages the positive re-use of redundant buildings that are part of our industrial and commercial heritage (BRANDT et al. 2000, BURLEY & LOURES, 2008). For the matter of how to reuse these buildings is becoming increasingly important on government's agendas, some see it as a burden while others see it as a possibility, but the main question always is: What possibilities do this kind of buildings have? Roders (2007) presents 7 types of "intervention" when it comes to heritage (figure 3.6)

1	Deprivation	Do nothing, or devalue significance or even surroundings
2	Preservation	Clean and arrest decay in a short time routine, inventory all information about building
3	Conservation	Clean and arrest decay in medium and long-term routine, repair medium scale damage
4	Restoration	Repair large scale damage and rebuild typical components in harmony with aesthetics
5	Rehabilitation	Re-use structure and fill gaps with whatever possible
6	Reconstruction	Partially or totally rebuild structure, re-use of services (infrastructure, fabric etc.)
7	Demolition	Demolish with or without recycling materials, forms components etc.

Figure 3.6: Possible interventions and explanations (source: RODERS. 2007)

In practice, the situation of industrial dereliction varies from each other, and usually it would be too simple to choose and approach just one intervention from the category. Since some of the old industrial sites are regarded as the complex system containing different types of buildings constructed in different periods, this determines the final feasible proposal should be a collection of various interventions targeting on specific situation of each building or cluster. Planning and design processes need to be site-specific ensuring that public aspirations are effectively addressed and proposals are thus appropriate for the site and that industrial heritage is safeguarded (LOURES, L & BURLEY, J).

3.2 INDUSTRIAL HERITAGE

ADAPTIVE RE-USE

In China, there are mainly three typical ways of preserving and re-using industrial heritage. The first is to transform monumental buildings with historical value into museums, and the production facilities inside are preserved as exhibits with authenticity, providing visitors perfect opportunities to gain the first-hand knowledge and experience about the industrial history. This approach belongs to the second category in the table mentioned before.

The second way is so-called 'artistic rebirth', which refers to the combination of emerging creative industries and old industrial workshops, breathing new life into those industrial derelictions. Culture is now seen as the magic substitute for all the lost factories and warehouses, as a device that will create a new urban image, making the city more attractive to mobile capital and mobile professional workers (HALL, 2000, p. 640). The preferable location and the transformable super-sized workshops provide diverse possibilities to accommodate emerging economies like creative industries. This is categorized into rehabilitation process.

Last but not least, the industrial heritage park is a good way to give the former industrial land back to the city for absolutely public use. One of the most successful examples is the Duisburg-Nord Park (figure 3.7), and its attraction lies in what Macaulay (1953) referred to as the pleasure of ruins, or the pleasure associated with exploring physical remains of the past. And it not only is a gigantic monument, but also an open-air museum, a free climbing and a scuba diving venue and an illuminated work of art (VOLLMER, M & BERKE, W. 2006, p.60). With innovative

To sum up, no matter which way is chosen, revitalizing industrial estates requires the radical new way of thinking and action, as well as the comprehensive study on the cultural and spatial characteristics as well as the needs of local residents around the site.

3.2 INDUSTRIAL HERITAGE



Figure 3.7: Landschaftspark Duisburg-Nord (photo from Flickr)

CASE STUDY

PART

4.

4.1 EUROPEAN PRECEDENT

IBA EMSCHER PARK

The Emscher Landschaftspark (Landscape Park) was initiated as a part of a 10-year regeneration programme led by the International Building Exhibition Emscher Park (IBA) which is a planning methodology that promote urban regeneration through culture-led regeneration driven by experimentation and independent in the urban development role (SHAY, A. 2012). It involves working in the social, economic and cultural milieu on the basis of an integral architectural approach that combines intervention on the built and also natural environment (BRUGGEMAN, F & LAVERGNE, F. 2010). The programme addressed the decline of the Ruhr Region in North-Rhine Westphalia, the industrial heartland of north west Germany, stretching across 20 local authorities and including several major urban centres (figure 4.1).

The area was characterized by social deprivation, huge outward migration and economic problems caused by the closure of most of the mines and steel factories. Environment was severely damaged because of decades of heavy industrial pollution. As a result, industrial dereliction and office building vacancy became main problems in urban area. Furthermore, urban environment decayed accompanied by the decrease of population, which resulted the cities being shrinking. New city image was needed to create attractiveness for new investment and emerging clean industries.

The regeneration programme focuses on a handful of strategic themes to reverse the urban decline and change the internal and external perceptions of the area. These themes includes 'Industrial monuments' transformed from retention and creative reuse of key industrial heritage, 'The new Emscher' stressing the regeneration of the river system, 'Working in the park' indicating provision of new types of employment spaces, and 'Living in the park' giving provision of new housing typologies. With outstanding achievements, Zollverein Park (figure 4.3) became part of the urban development and ecological renewal effort within the IBA Emscher Park.

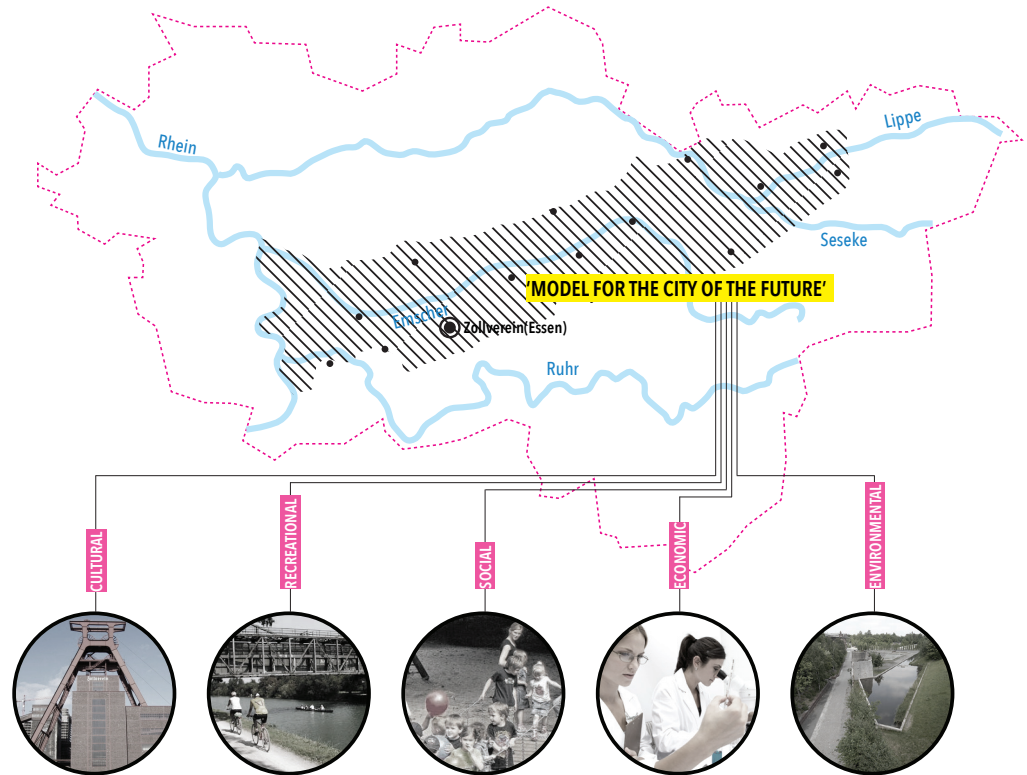


Figure 4.1: Location and multi-purposed planning of IBA Emscher Park (made by author)

A holistic ten years (1989 to 1999) top-down initiative with a grassroots philosophy to re-imagine the Ruhr.

4.1 EUROPEAN PRECEDENT

ZOLLVEREIN INDUSTRIAL COMPLEX

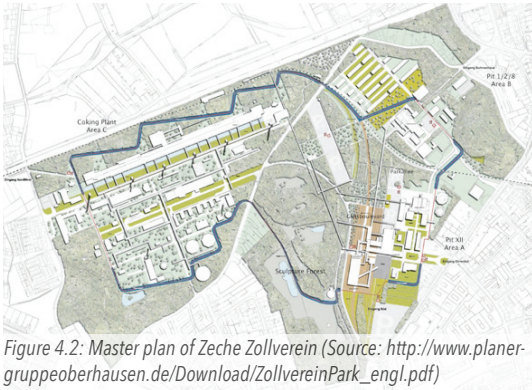


Figure 4.2: Master plan of Zeche Zollverein (Source: http://www.planer-gruppeoberhausen.de/Download/ZollvereinPark_engl.pdf)



Figure 4.3: Zeche Zollverein (photo by author)

The Zollverein industrial complex located in Essen in the Ruhr in Germany, and it consists of the complete infrastructure of a historical coal mining and coke manufacture site. A number of industrial buildings in the site are regarded as the exceptional architectural merit, which have given Zollverein the reputation of being the “most beautiful coal mine in the world”(figure 4.3). This unique site has been chronicling both the evolution and decline of the essential coal mining industry of Germany over the past 150 years. Zollverein is the living embodiment of high-power industrialization and simultaneously a symbol of structural transformation in the Ruhr area.

Furthermore, the buildings were constructed in Bauhaus style, and the beautiful Zollverein was inscribed into the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites in 2001.

After coal and coke production stopped in the late 20th century, the authorities struggled what to do with this post-industrial land for about 10 years, and the site were confronted with the threat of demolition. Fortunately, the authorities were wise enough to buy it from the former owners and declared it as part of the industrial heritage of Germany. Then Rem Koolhaas of OMA designed the master plan for Zollverein Park, which is now an area of 1 km² incubator site for design and art (figure 4.2).

4.1 EUROPEAN PRECEDENT

ZOLLVEREIN INDUSTRIAL COMPLEX

As part of the preliminary research process for graduation project, I visited the site for field study to have first-hand knowledge about this place and experience the result of both spatial and economic transition of the site. New roads and the extension of an existing highway through a tunnel servicing the site will promote the accessibility. The rail tracks inside the site will be maintained and filled with pavers to create pedestrian walkways, functioning as the public space. For those industrial buildings, the simple Bauhaus facade is equally suitable for housing concerts, dance and theatre shows, not to speak of congresses, conferences and trade fairs. Therefore, it is being developed into an innovative meeting point for design and the arts. Today many of the buildings realized adaptive re-use, some have been converted into contemporary art museums, conference halls, cinemas, restaurants, and even a casino. Functional re-adaptation brought new life to this industrial dereliction (figure 4.4 & figure 4.5).

By focusing on the reveal of the value of natural assets such as landscape and waterways, and the creative re-use of industrial heritage buildings, the development of Zollverein has inspired a new identity for the area that captured its industrial history and the importance of this to local people. And it will become home to companies from the fields of design, architecture, exhibition construction, advertising, marketing and communication. Design competence will be concentrated here and make a positive economic contribution to the economy of Germany (Zollverein Official Website).



Figure 4.4: Summer activities in Zeche Zollverein (photo by Stefan Ziese)



Figure 4.5: Winter activities in Zeche Zollverein (photo by Stefan Ziese)

4.1 EUROPEAN PRECEDENT

ZOLLVEREIN INDUSTRIAL COMPLEX



Figure 4.6: Red Dot Industrial Design Museum in Zollverein: Building Facade in Bauhaus Style (photo by Author)

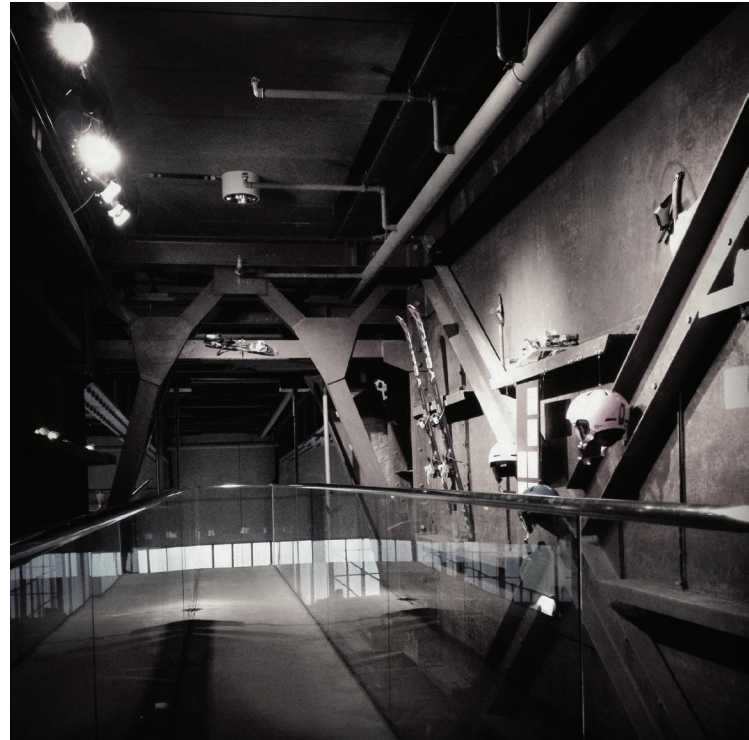


Figure 4.7: Interior of Red Dot Museum: re-use former industrial facilities for innovative way of displacing exhibits (photo by author)

4.2 CHINESE PRECEDENT

798 ART ZONE

In Beijing, there are several precedents of derelict industrial areas that were subject to reprogramming partially or even in full-scale of transformation. Generally, the culture-related industries are regarded as the best replacement of former industrial land, resulted in the strategy of introducing creative industry has been increasingly popular in China. One of the cultural landmarks of Beijing is the contemporary artists' district Dashanzi, where the 798 Art Zone is located and has international reputation as one of Beijing's ten designated cultural creative cluster (KEANE, M. 2008).



Figure 4.8: 798 industrial building in Bauhaus style (photo by JIAZI)

4.2 CHINESE PRECEDENT

798 ART ZONE



Figure 4.9: Exhibition Hall: spacious interior and abundant skylight make the place perfect for arranging exhibition flexibly (photo by Indigo11 from Flickr)

Figure 4.10: 798 Time Zone Bookshop: reuse of former workers' canteen (photo by Jennywong from Flickr)

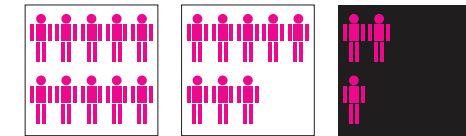
Figure 4.11: Sculptures in 798 Plaza (photo by Bridget O'Donnell)

The area occupied by Beijing 798 Art Zone was once the place for Beijing North China wireless joint equipment factory (namely, 718 Joint Factory), which was designed in the Bauhaus style (figure 4.8) by East German architect in 1952. And the 718 Joint Factory was disbanded and six sub-factories took their own lives, including the 798 factory. With the decline of the manufacturing, the factory was shut down and taken over by a group of artists, who turn parts of it into lofts, studios and art galleries. Being the place to house a number of exhibitions

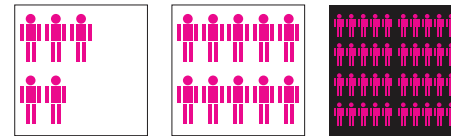
of modern and experimental art, the attractiveness was promoted, the site then filled up with shops, cafe and restaurants, being an exhibition place featuring China's avant-garde (KEANE, M. 2008) and a perfect combination of creative cluster and industrial remains. Nowadays, the site is becoming an artists' colony, by launching the annual event '798 International Art Festival' since 2006, the former military compound is put on the international art circuit.

4.3 CONCLUSION

DIFFERENT URBAN CONTEXT



VS



Shrinking Cities in Ruhr

Rampant Urban Growth



Figure 4.12: Difference in urban context between the Ruhr and Beijing (made by author)

IBA Emscher Park in Ruhr:

The decline of heavy industries intensified the economic decay of those old industrial cities in Ruhr region. Increasing amount of manufactures and companies shut down or moved away since 1970s. Industrial dereliction and office building vacancy became main problems in urban area. Furthermore, urban environment decayed accompanied by the decrease of population, which resulted the cities being shrinking. New city image was needed to create attractiveness for new investment and emerging clean industries.

Capital City of Beijing:

Most of big Chinese cities have been experiencing extremely rapid urbanization and modernization process in the past decades. As a result, significant amount of immigrants have been flowing into those advanced cities for a better career. Complexity of factors intensified the rampant urban growth, increasingly high density and whopping land price. Meanwhile, those former industrial areas have been swallowed by enormous urbanization wave, in need of transition to integrate into the city.

- LESSON LEARNED FROM IBA**
1. Involvement of various stakeholders;
 2. Having a regional-level strategy as the guiding principle;
 3. Industrial heritage is regarded as a valid focus for celebration and can anchor new development in the continuing history of a place;
 4. The use of the IBA as a political tool – limiting the IBA to 10 years – gave confidence to the politicians and investors that there was enough time to effect significant change, but there was a definite end point in sight;
 5. Long-term process that requires socio-economic revitalization effort;
 6. The IBA encouraged temporary uses of land and buildings awaiting development that stimulated interest in the short term, and investor confidence in the longer term;
 7. The use of marketing and the media, which is vital in challenging negative perceptions of the area.
 8. A multi-purposed development concerning almost every aspects of urban issues, including cultural, recreational, social, economic and environmental.

LESSON LEARNED FROM 798 ART ZONE

1. Initial bottom-up development;
2. Clustered economy - cultural and creative cluster, and development of art district;
3. The use of annual event '798 International Art Festival' to attract attention from abroad and gain reputation in international level;
4. Combination of heritage buildings with avant-garde art and creative industry which have enormous attractiveness for both populace and visitors from abroad;
5. Close connection with related education institutions (Chinese Academy of Fine Art)

STRATEGIC PLANNING

PART

5.

5.1 CITY STRATEGIES

REGIONAL STRUCTURE

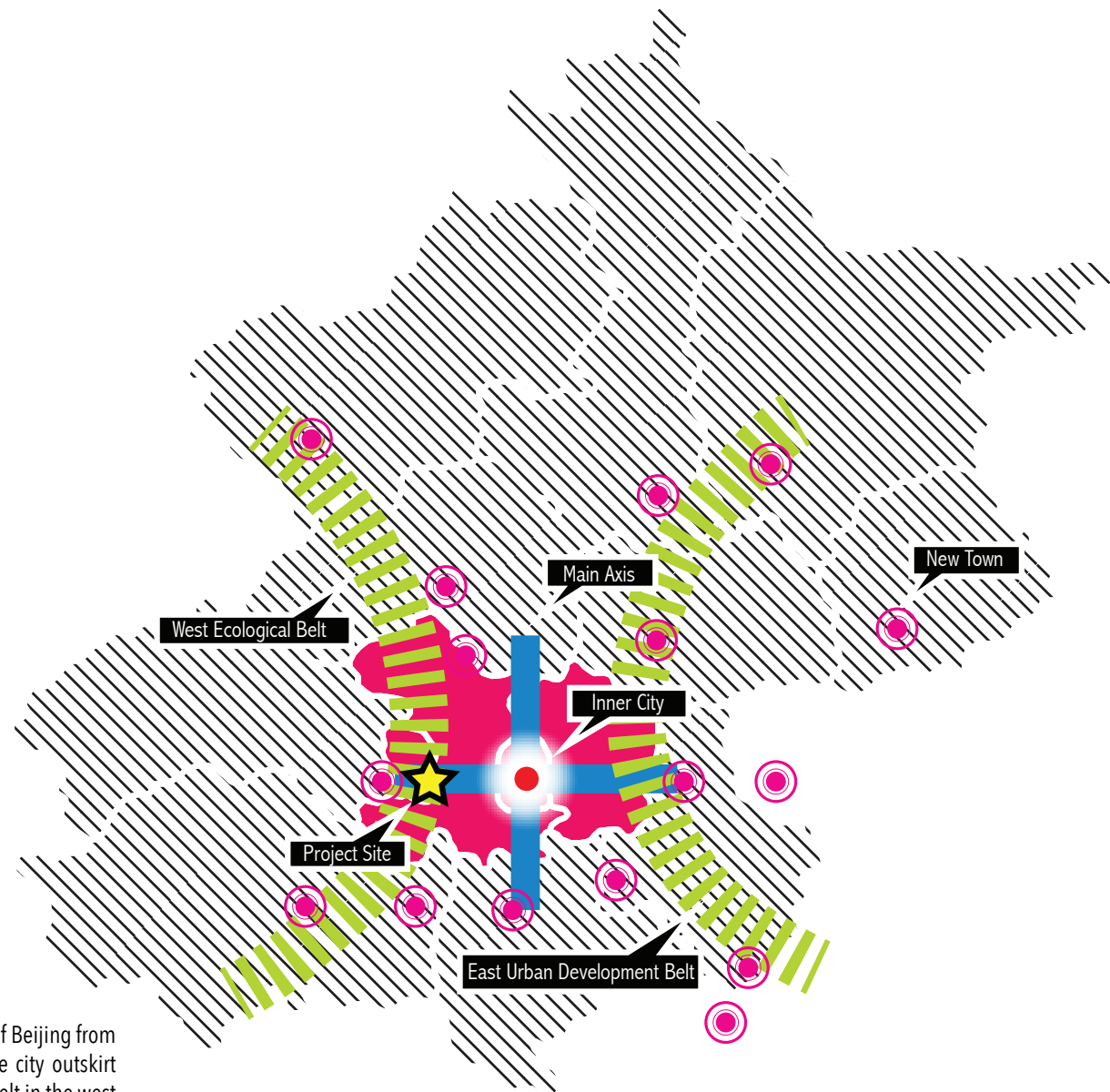


Figure 5.1: Regional structure planning of Beijing (made by author, source from government website)

Based on the official planning for the regional structure of Beijing from the central government, the future development of the city outskirts will follow two development belts which are ecological belt in the west and the urban development belt in the east. The project site is located on the intersection of the Chang'an Avenue extension and the west ecological belt, where a strategic planning addressing both ecological concern and urbanization tendency is expected (figure 5.1).

5.1 CITY STRATEGIES

PRESSURE FROM URBANIZATION TREND

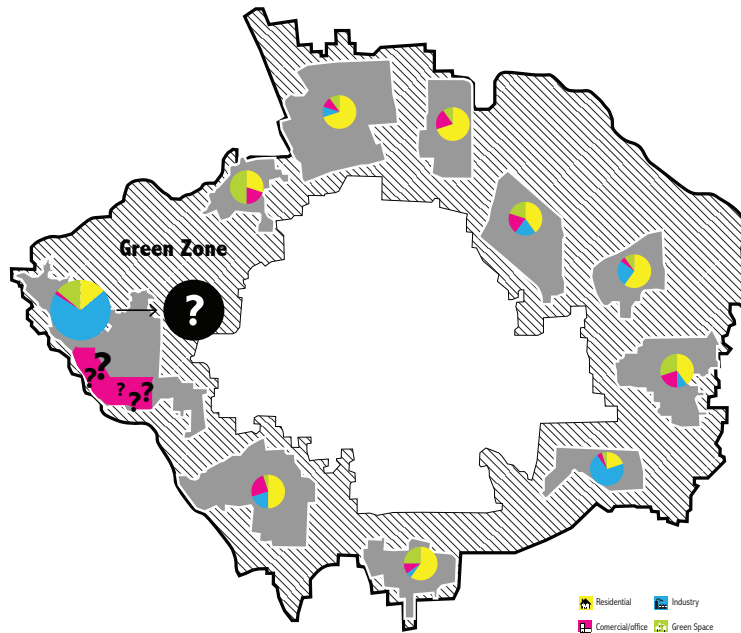


Figure 5.2: Functions of satellite clusters in city periphery (made by author)

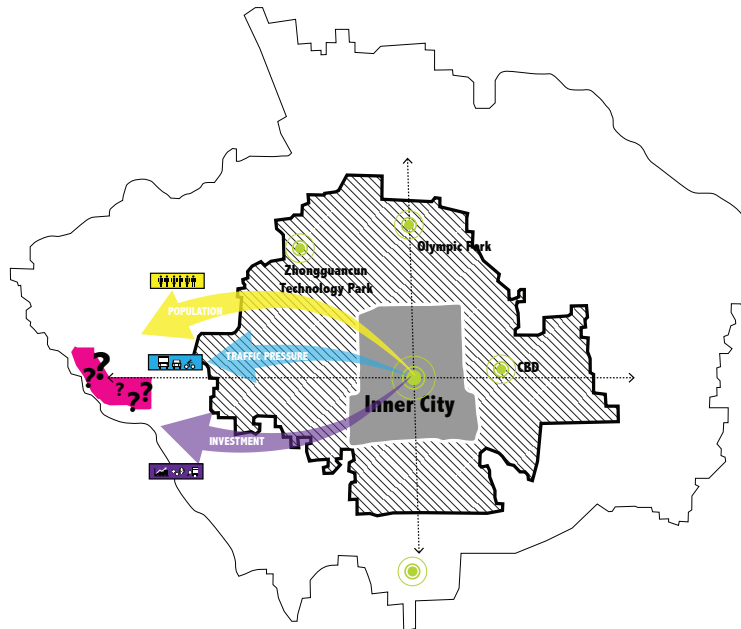


Figure 5.3: Divergence function (made by author)

According to the expectation of the overall city planning of Beijing government, on the premise of controlling the scale of intra-urban area, the population of the inner city will be dispersed to outskirts gradually, in order to achieve a balanced population distribution in the whole city. The realization of this planning objective calls for development of the city outskirts areas which refers to the satellite clusters surrounding the central city. They are at a distance from one another by the wedge green areas that consist the green belt zone (inner green belt as shown in figure 2.17) surrounding the intra-urban. Figure 5.2 shows the main functions of each cluster. For majority of the clusters, the dominant function is residential that provides cheaper housing than inner city area, whilst generating maximized profit for real estate developers as well as the local government. Since selling the land to private real estate industries is regarded as the shortcut for increasing local GDP, and the typical development mode (figure 1.5) has been quite popular for those profit-driven development.

As to the project site, it is also confronted with the huge pressure from the typical development trend because of its great potentials. To go against the trend, a combination of smart city strategy and planning logic is in need, delivering persuasive statement for the politics and populace to come to the consensus.

In addition, with rapid urbanization and modernization process, the increase of urban pressure in the downtown area of Beijing has become inevitable and a hard nut for future planning. Therefore, the expectation of the government is that by redeveloping the west part of city the urban pressure from influx of immigrants and increasing traffic volume will be diverged, and at the same time forge a preferable air to attract investment at both local and international level. And the rehabilitation of the dereliction left by the steel industry will be a catalyst for the development of the western part of the city and helpful to the decentralization of capital and urban pressure, formulating a new centrality that activates the west part of Beijing, achieving balanced development of the whole city.

5.1 CITY STRATEGIES

SCENARIO PLANNING

VISION

=

CITY STRATEGY

+

CITY SCALE INTERVENTION

+

LOCAL ACTIONS

SCENARIO I

Development of **technology & knowledge-based industries** as the driving force, being dominant in the economic transition of this area

Make use of nearby technology industry clusters, such as the Industrial Design Base and three branch technology parks of Zhongguancun, and create new connection (subway extension) to forge a development belt of knowledge-based industries in the northwest of the city.

- Top-down planning for the business park
 - Partly demolition
 - Training institutions for unemployed workers from former steel factory
-

SCENARIO II

Culture-led urban regeneration with creation of a new agglomeration for creative class and visual art related industries.

Without related industries nearby to rely on, the unique identities of the place will be the key dynamic for the re-programing project, including tangible and intangible aspects. In addition, urban events would be a smart kick-off to attract attention at local even international level, also provide opportunity to ally with other well-developed creative clusters.

- Incentives or subsidy to attract creative class
 - Spontaneous development
 - Low cost and adaptive reuse
 - "Lighthouse" & no-build projects
 - Establishment of related education institutions
-

SCENARIO III

Regional park as entertainment-led regeneration along with ecological concern provides an enormous green space in the dense urban area, transforming the former polluter into a green lung of the city

By planning a huge park on the site, the green connection from the ecological corridor on the city border to the intra-urban area will be created, at the same time linking the two green belts.

- Repair and preserve all heritage buildings to keep the authenticity of the history
 - Adding small installations and interventions for leisure and entertainment
 - Adding more green
 - Bicycle park path
-

Figure 5.4: Description of three alternative scenarios (made by author)

5.1 CITY STRATEGIES

SCENARIO II

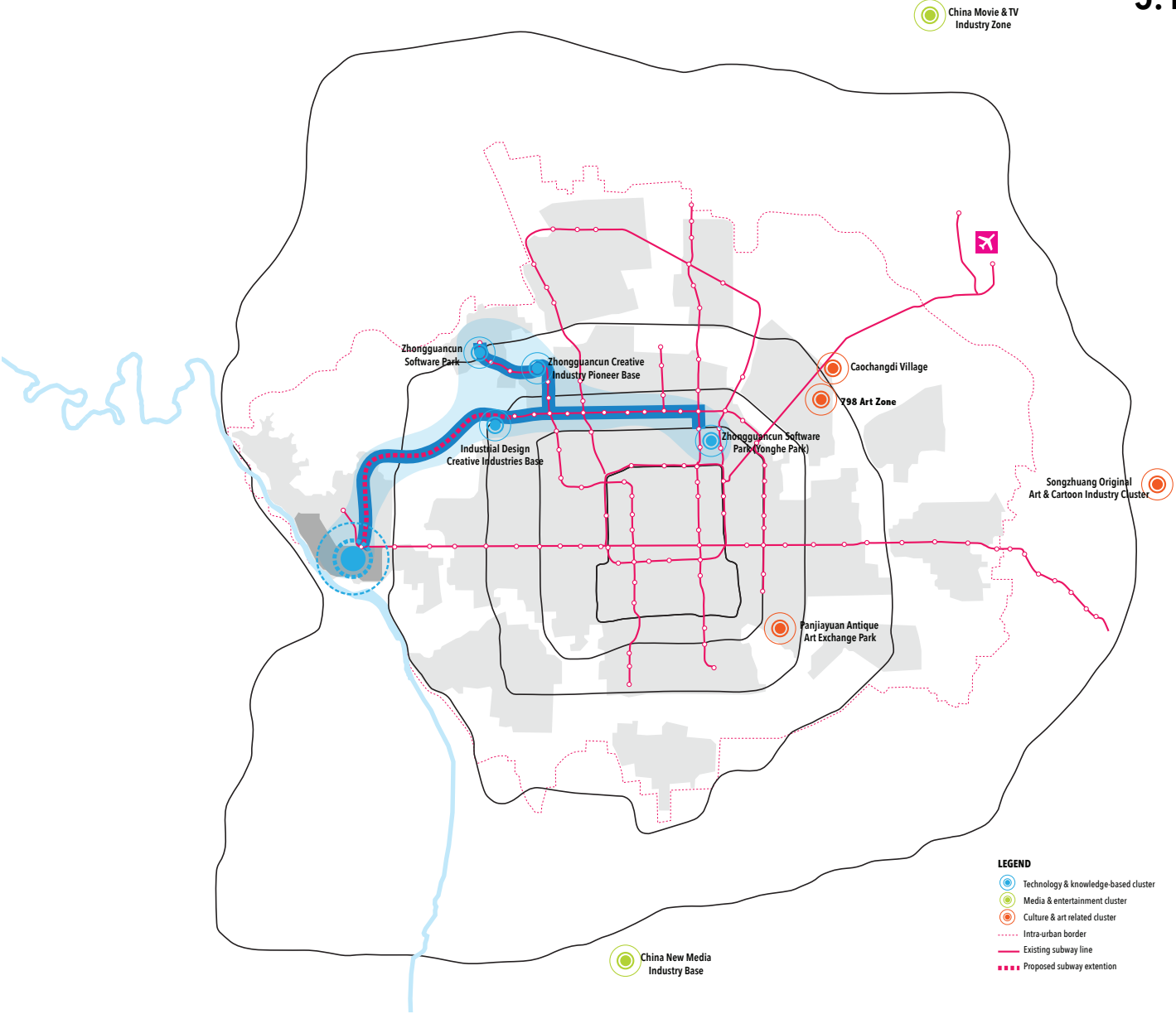


Figure 5.5: Scenario I: Development belt of technology & knowledge-based industries(made by author)

5.1 CITY STRATEGIES

SCENARIO II

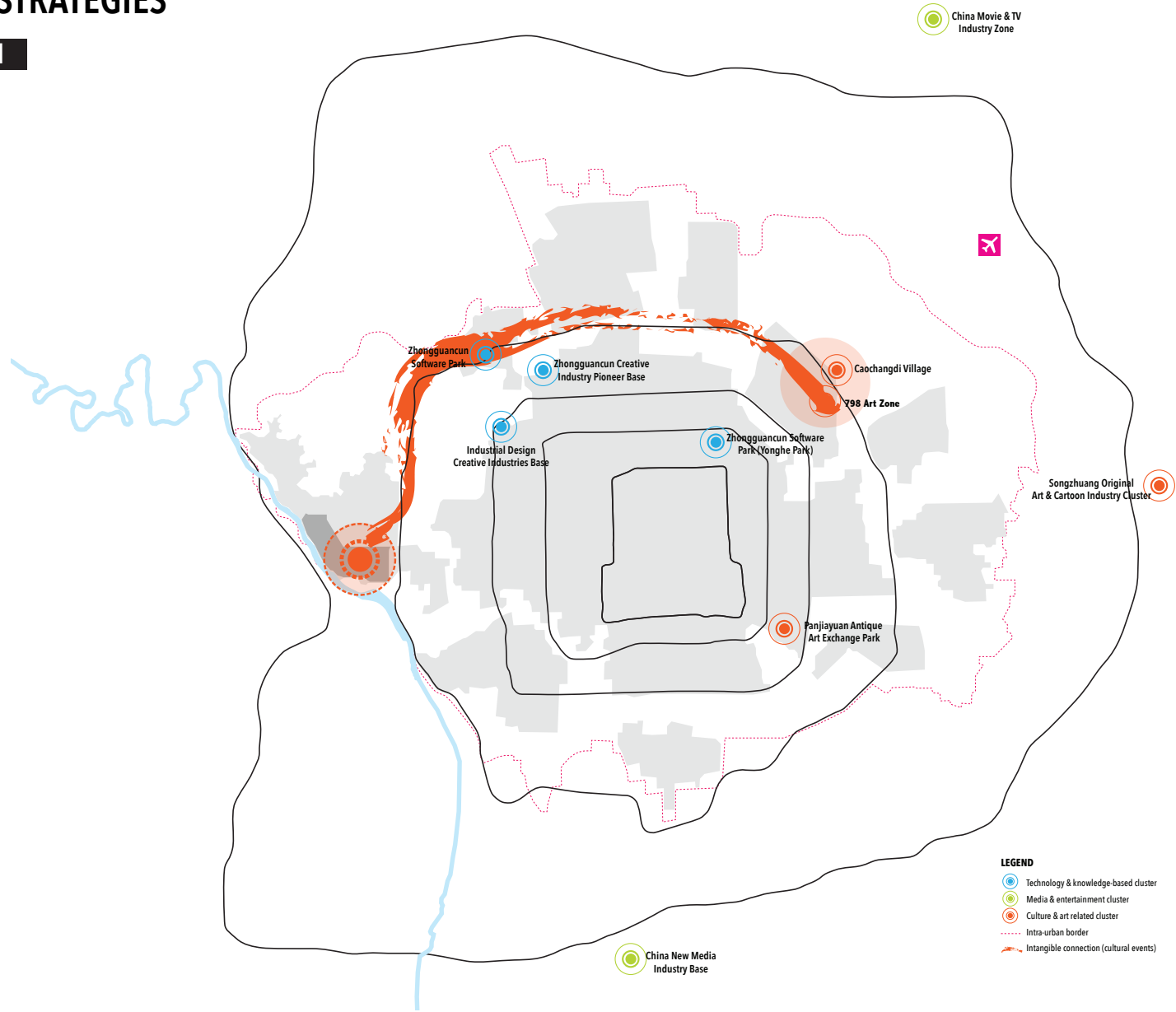


Figure 5.6: Scenario II: culture-led regeneration with creative clusters (made by author)

5.1 CITY STRATEGIES

SCENARIO III

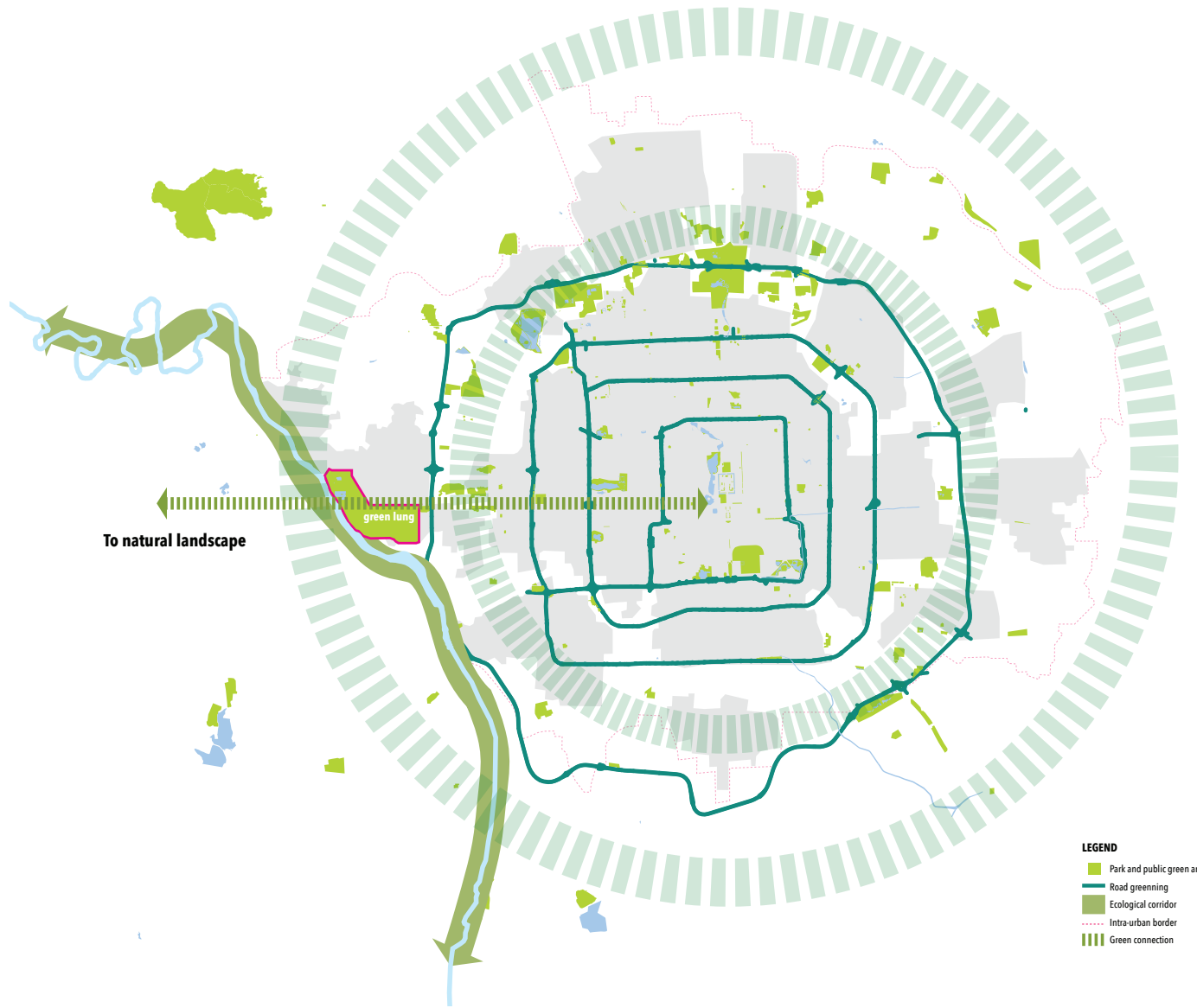


Figure 5.7: Scenario III: Regional park as the green lung of the city (made by author)

5.2 LOCAL ADVANTAGES

SPATIAL & ARCHITECTURAL FORM

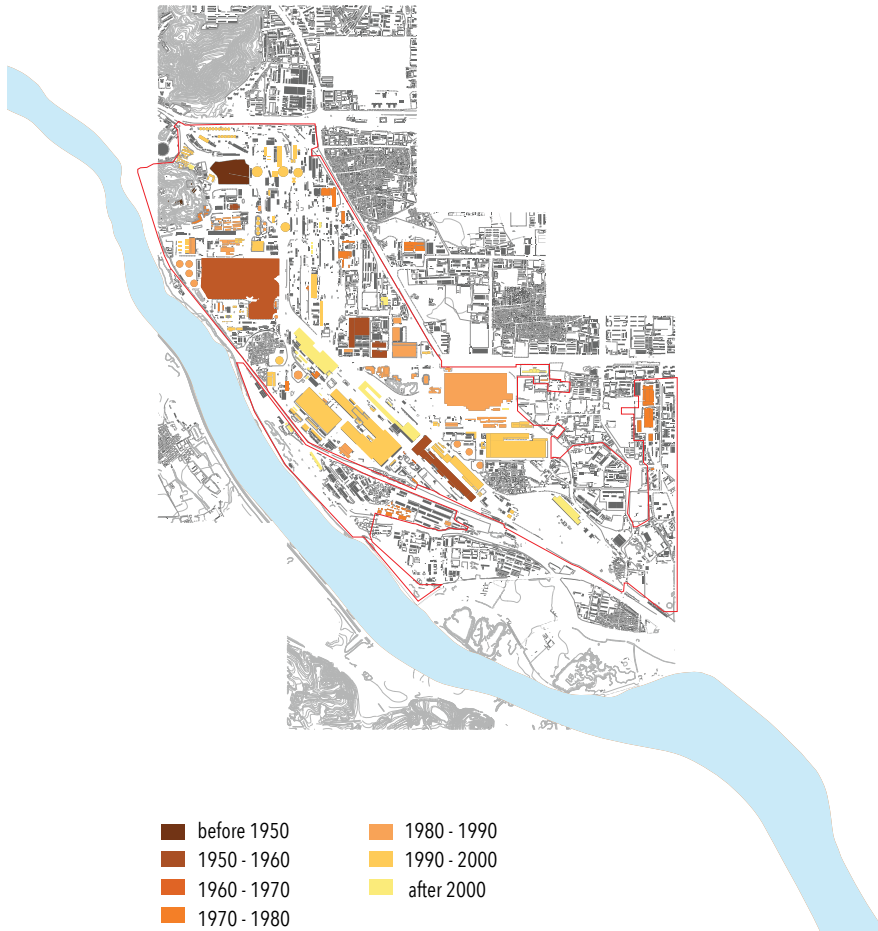


Figure 5.8: Construction year (made by author)

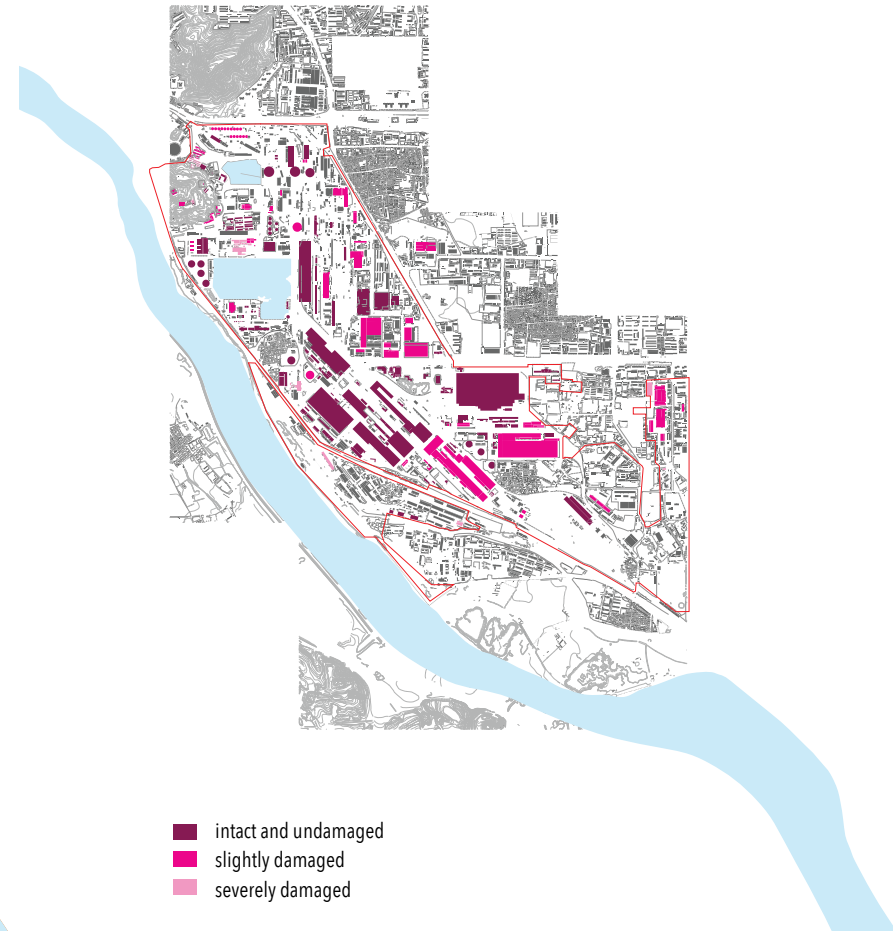
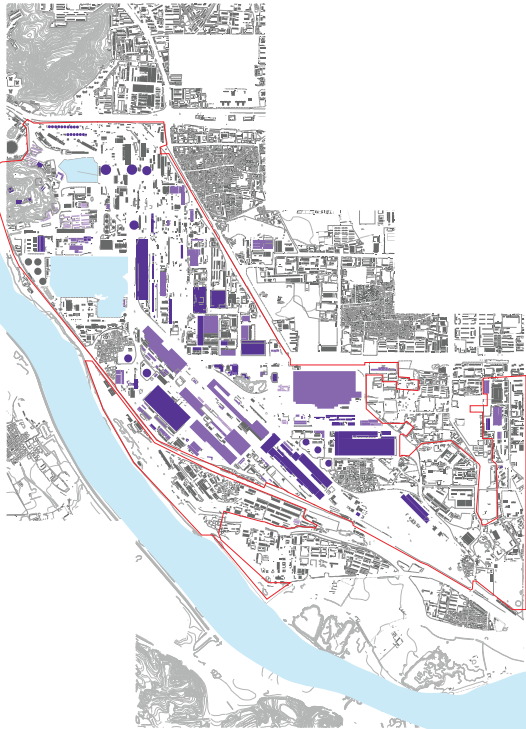


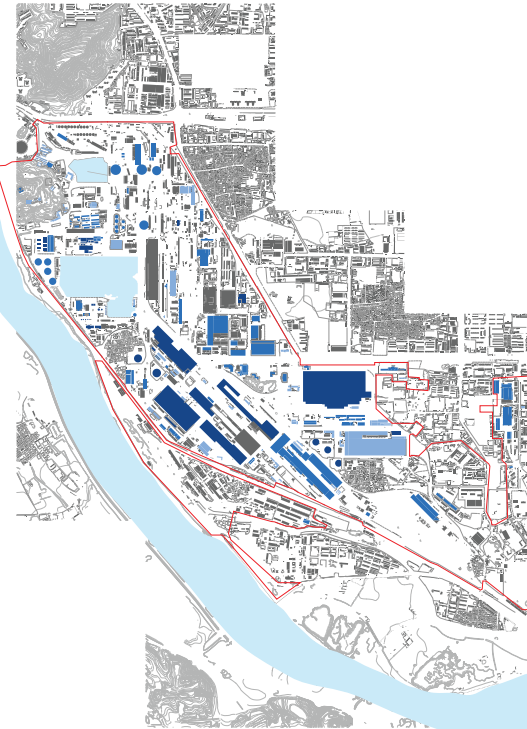
Figure 5.9: Building quality (made by author)

5.2 LOCAL ADVANTAGES



- building with strong identity
- building with identity
- building without instinct identity

Figure 5.10: Building style (made by author)



- steel structure
- reinforced concrete structure
- brick structure (or brick concrete)

Figure 5.11: Building type (made by author)

5.2 LOCAL ADVANTAGES

SPATIAL & ARCHITECTURAL FORM

Combining the results of architecture studies including construction year, building quality, building type and structure type, a conclusion map is made to show that there are a number of the buildings that should be preferably preserved or adaptively transformed. Among these buildings, some have instinct identity, and some are in good condition and have firm steel truss.

The strong identity of steel industry makes this place ideal for culture-led regeneration. As Persy (2003) states, "cultural is now seen as the magic substitute for all the lost factories and warehouses, as a device that will create a new urban image". Moreover, the development of cultural industries is encouraged by government since the early years in 21st century, because the designated function of Beijing is modified from a productive base towards the political and cultural center of China, resulting the cultural concern is put on the top of the agendas for urban regeneration process. In addition, The flexible re-use of those dilapidated buildings will attract creative class who is searching for an innovative lifestyle and working environment. In fact, the comprehensive consideration of city's function and the local advantages makes the scenario II much proper than the other two, therefore, the next step I will do further research for developing this scenario.

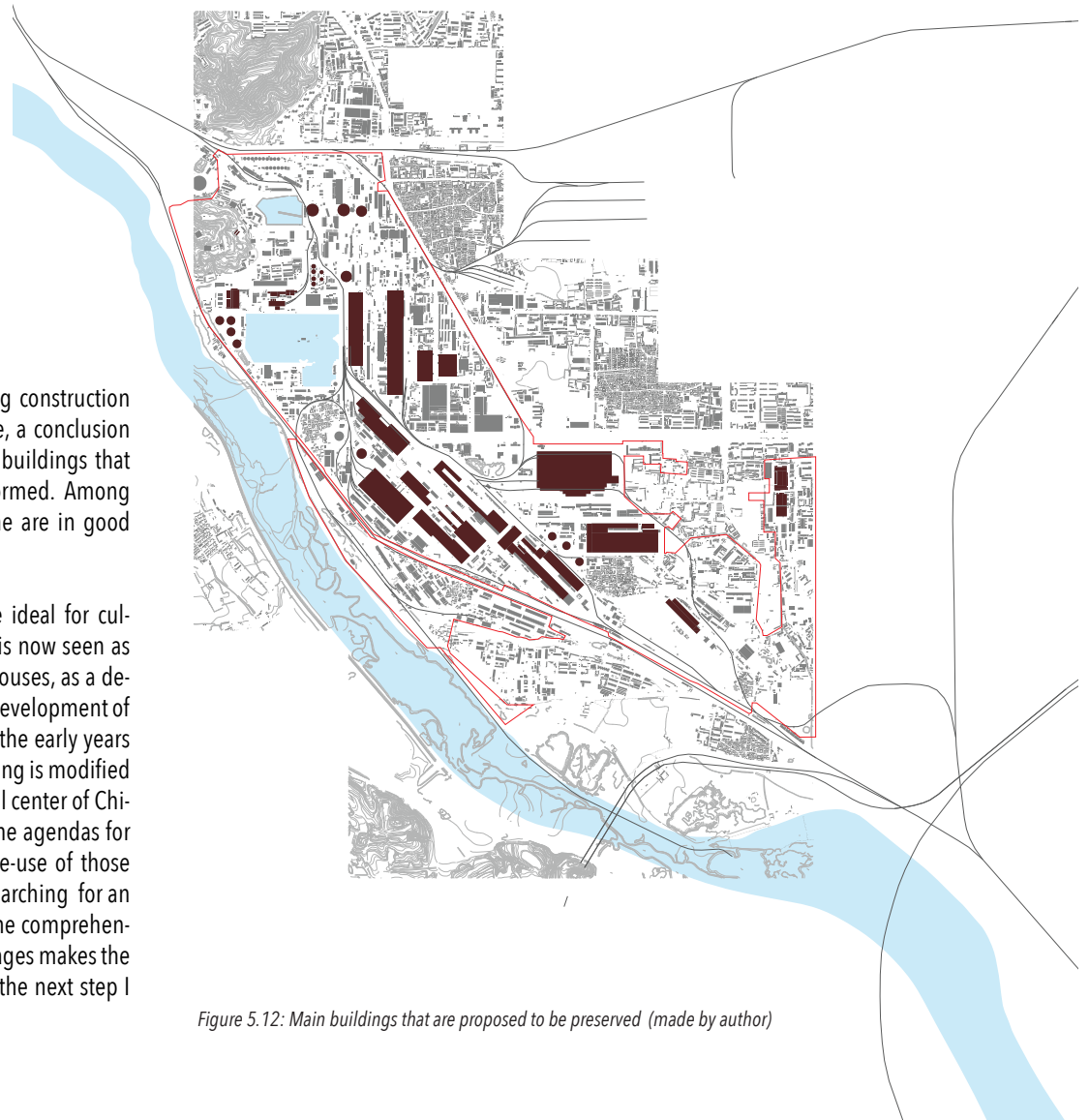


Figure 5.12: Main buildings that are proposed to be preserved (made by author)

5.3 VISION / ALTERNATIVE SCENARIOS

PRELIMINARY VISION OF SCENARIO II

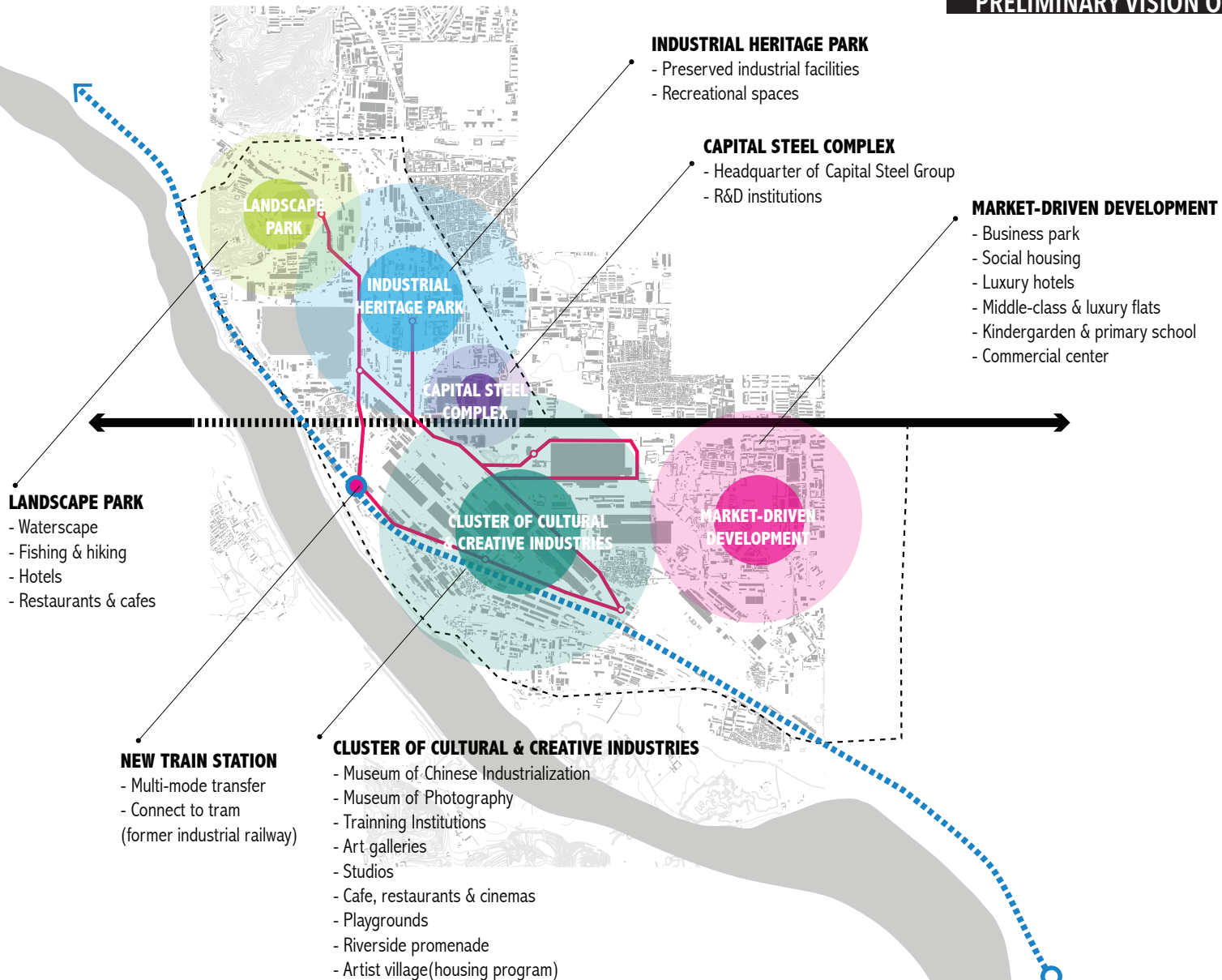


Figure 5.13: Local vision of Scenario II (made by author)

5.3 PHASING PLAN FOR SCENARIO II

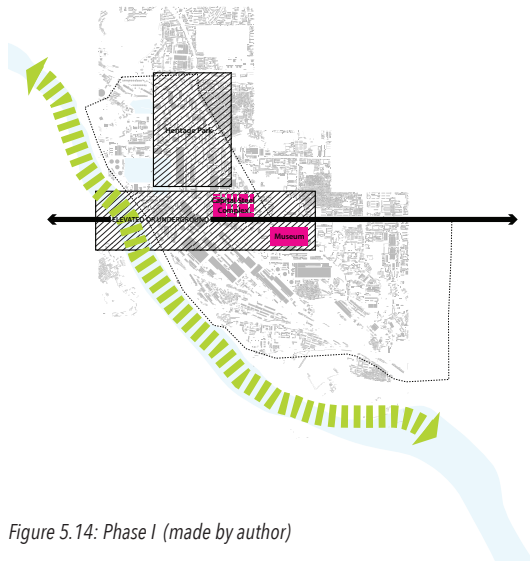


Figure 5.14: Phase I (made by author)

PHASE I: SPATIAL TRANSITION

2013-2016

1. AXIS DEVELOPMENT (Along Chang'an Avenue)
 - Axis extension (viaduct or underground tunnel)
 - Headquarter of Capital Steel
 - Museum of Chinese Steel Industry
2. INDUSTRIAL HERITAGE PARK (Northern Part)
 - Clean up industrial waste
 - Demolish severely damaged buildings and auxiliary buildings without reusable value
 - Improve landscape quality in the northern part by adding more greenery
3. RIVERFRONT NATURALIZATION

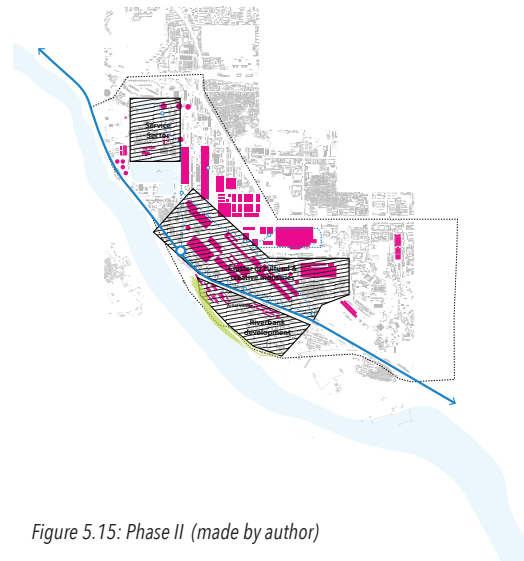


Figure 5.15: Phase II (made by author)

PHASE II: ECONOMIC TRANSITION

2016-2020

1. CLUSTER OF CULTURAL & CREATIVE INDUSTRIES (Southern Part)
 - Improve landscape quality
 - Renovate slightly damaged buildings
 - Adaptive reuse of buildings
2. CONNECTION & ACCESSIBILITY
 - Regional accessibility: new train station
 - Inner site connection: reuse of railway for tram line
3. RIVERBANK DEVELOPMENT
 - Promenade
 - Linear park
 - Artist village (new housing)

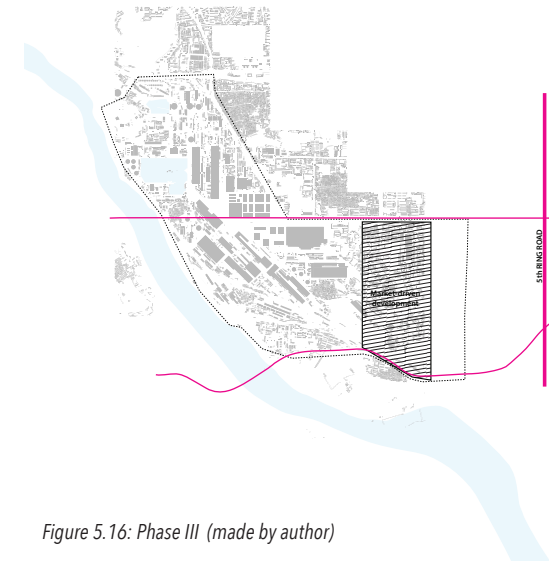


Figure 5.16: Phase III (made by author)

PHASE III: MARKET-DRIVEN DEVELOPMENT

2020-2025

1. NEW HOUSING PROGRAMS (East Part)
 - Social housing
 - Luxury hotels & apartment buildings
 - Middle-class housing
2. BUSINESS PARK (East Part)
 - New office buildings for technology-based industries
 - Mix-used district including commercial function

5.4 STRATEGIC PROJECTS LOCATION

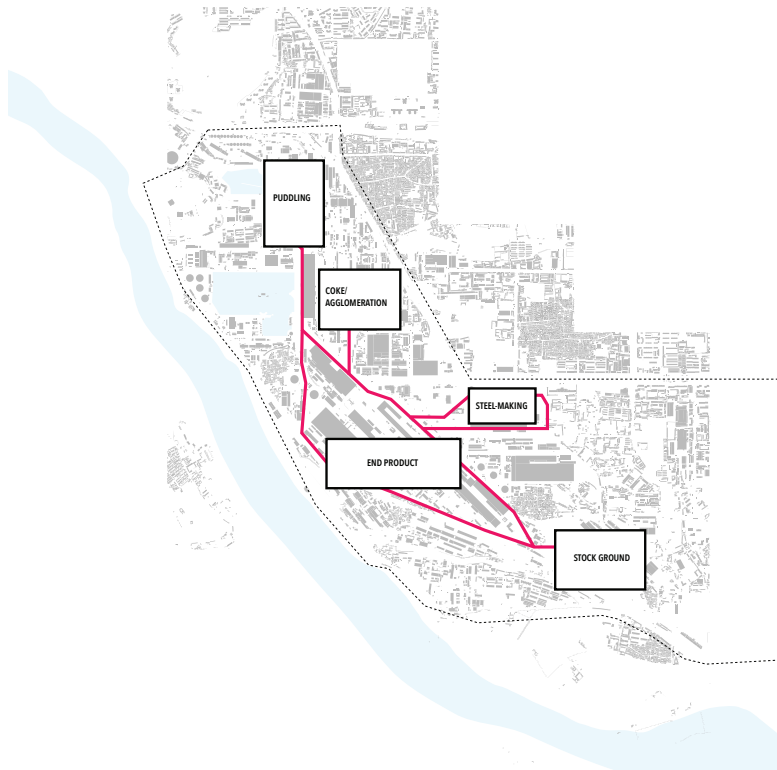


Figure 5.17: Railway as the thread to present production flow (made by author)

The industrial transportation railway system passing through the heart of the site was once connection between important production workshops (figure 5.17), representing the essence of the steel production process. Therefore, it will be preserved and transformed into new transportation mode within the site, connecting those important buildings.

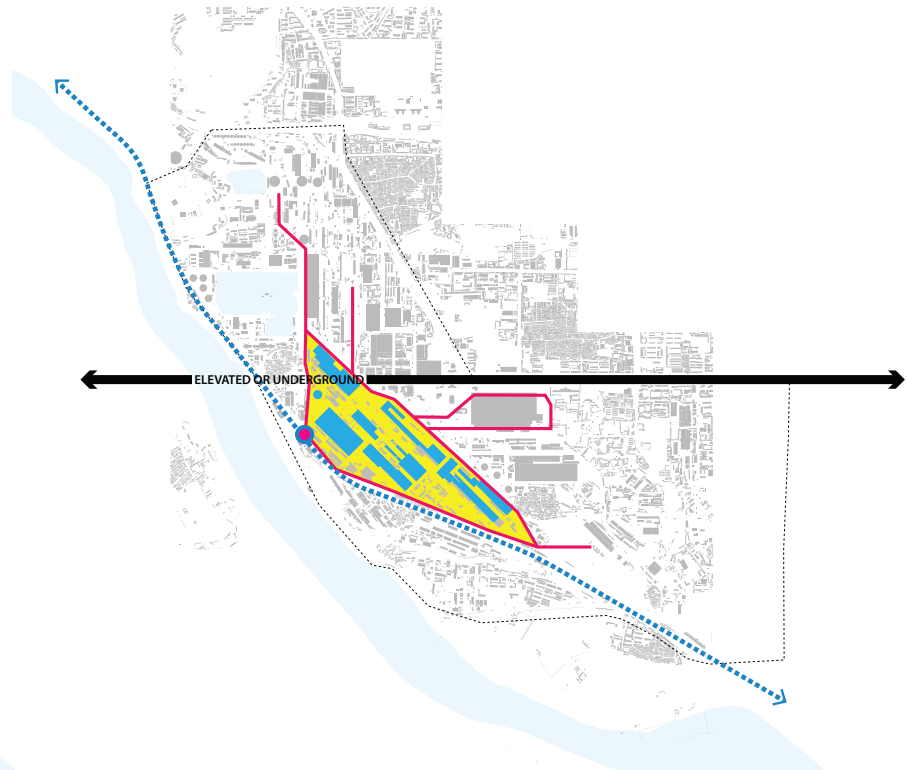


Figure 5.18: Location of strategic project (made by author)

The area used for processing steel end products is chosen to be the strategic project (figure 5.18), which is surrounded by the railway and consists of a number of super-sized workshops and warehouses with reusable steel truss and firm structure. The urban design of this area will create a building complex innovatively to accommodate creative class.

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