Urban Space Regeneration

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URBAN SPACE
REGENERATION

TO CREATE A NEW CIVIC SPACE FOR BEIJING

TRANSFORMING THE CITY FROM A HEAVY INDUSTRIAL CITY IN A GARDEN CITY
The main idea I pursued in my research is the regeneration of urban space, which helped to create a new civic space for a city. The details of urban space regeneration are designed to improve the quality of life, and to increase the use of urban public space. Based on the research and background study, my thesis explored to improve the urban environment, enhance urban space usage, and improve city image in Beijing to regenerate it from a heavy industrial city in a garden city. In my research on regeneration of urban space I came across the example of the city named Dalian that I used as a guide. Dalian is now a well-known city in China, because of the success in transforming the city from a heavy industrial city in a garden city.
I would like to sincerely thank all the people who helped me. Especially Professors Liz Martin and Giovanni Loreto, thank you for all that you have done.
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Thesis Proposal

1.1 Abstract

Urban regeneration has been accompanying urban development since the prehistoric era, and has evolved into a field of study since the World War Two. During this period, experience and theory of urban form, the social conditions for the development of urban policies, and the urban environment, which were recognized as prerequisites for the urban development of cities. Urban space is the stage upon which the drama of communal life unfolds, the streets, bridges, railways, squares, parks and green space are all forms of urban public space (Carr, Francis, Rivlin, and Stone, 1992).

1.2 Thesis Statement

The main idea I pursued in my research is the regeneration of urban space, which helped to create a new civic space for a city. The details of urban space regeneration are designed to improve the quality of life, and are based on the use of urban public space.

I envision the urban space as the place for urban residents to meet and talk, to stay in the natural environment, a multifunctional space in urban areas, which could be the center of political, economic, or cultural activities. Researching how to make the urban space more useful, reasonable and ecological for the city has become a key factor for the development of cities to provide local residents with green civic areas to enjoy public life, and to improve the urban environment.

Since 1978, China has experienced rapid development because of the advancement of the 'Open Door' policy. The industrial sector grew faster than the agricultural sector, and heavy industry grew faster than light industry, while a lot of heavy industrial cities left with a lot of urban environmental and urban space usage problems. Beijing represents one of these cities, it is the capital of China, and it is the political and cultural center that shapes the city image.

In my research on an example of the city named Dalian that I used as a guide. Dalian is now a well-known city in China, because of the success in transforming the city from an industrial city in a garden city. In the past twenty years, the major concern of Dalian government was to provide urban residents with public space to enjoy public life, and to improve the urban environment. The designers built many squares between the road systems. The construction of squares was carefully and systematically planned, and the location of squares was pertinent to the land use pattern. The squares are fully utilized, are used as transportation foci as well as cultural and entertainment centers of the city, and are enjoyed by both local residents and tourists.

Based on that research and background study, my thesis explored to improve the urban environment, enhance urban space usage and improve city image to regenerate it from an heavy industrial city in a garden city.

SECTION I: Theorem

Chapter 1

1.2.1 Urban regeneration

The main idea of my research is the regeneration of urban space, which helped to create a new civic space for a city. The details of urban space regeneration are designed to improve the quality of life, and are based on the use of urban public space.
1.3. Background

1.3.1 Urban Public Open Space

Based on former studies, Wang (2002) summarized the definition of public space and open space in the context of urban area: the space is the place for urban residents to meet and talk with others, and for human being to stay in the natural environment. It is also the symbol of urban image, thus being called as the living room of the city. It is a multifunctional space in urban area, which could be centres of political, economic, or cultural activities. The streets, bridges, railway square, parks and green spaces are all forms of urban public space.

1.3.2 Public Life in Public Spaces

Public life in public spaces is desirable for people and good for societies (Carr et al., 1992). Public spaces can offer relief from stresses, providing opportunities for relaxation, entertainment and social contacts. People can discover new things and learn from others through public life (Carr and Lynch, 1968; Ward, 1978).

### Table 1-1 Urban Public Open Space

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perennial Areas</td>
</tr>
<tr>
<td></td>
<td>Forest, pasture,</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>Man-Made</td>
<td></td>
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<tr>
<td></td>
<td>Parks</td>
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<tr>
<td></td>
<td>Gardens</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>Community centers,</td>
</tr>
<tr>
<td></td>
<td>playgrounds for</td>
</tr>
<tr>
<td></td>
<td>parks, etc.</td>
</tr>
<tr>
<td>Transportation</td>
<td>City transport,</td>
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<tr>
<td></td>
<td>transport network,</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
<tr>
<td>Recreational</td>
<td>Parks, sports</td>
</tr>
<tr>
<td></td>
<td>centers, etc.</td>
</tr>
<tr>
<td>Work</td>
<td>Greenhouses in</td>
</tr>
<tr>
<td></td>
<td>factories, etc.</td>
</tr>
<tr>
<td>Leisure</td>
<td>Public service</td>
</tr>
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<td>Public</td>
<td>facilities in the</td>
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<tr>
<td>Pocket</td>
<td>community, outdoor</td>
</tr>
<tr>
<td>Green</td>
<td>space in a community</td>
</tr>
<tr>
<td>Environment</td>
<td>Commercial,</td>
</tr>
<tr>
<td>Life</td>
<td>financial, and</td>
</tr>
<tr>
<td>Level</td>
<td>municipal facilities</td>
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<tr>
<td>- Residential</td>
<td>that open to the</td>
</tr>
<tr>
<td>- Public</td>
<td>public, etc.</td>
</tr>
<tr>
<td>- Pocket</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Commercial centers,</td>
</tr>
<tr>
<td></td>
<td>cultural and</td>
</tr>
<tr>
<td></td>
<td>entertainment</td>
</tr>
<tr>
<td></td>
<td>centers, urban</td>
</tr>
<tr>
<td></td>
<td>squares, parks, etc.</td>
</tr>
<tr>
<td></td>
<td>All this service are</td>
</tr>
<tr>
<td></td>
<td>all the citizens in</td>
</tr>
<tr>
<td></td>
<td>the city</td>
</tr>
<tr>
<td>Detail</td>
<td></td>
</tr>
<tr>
<td>Level</td>
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### Table 1-2 Relationship between Quality of Environment and Public Life

<table>
<thead>
<tr>
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<th>Poor</th>
<th>Good</th>
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<tr>
<td>Urban regeneration</td>
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<td>Public life in public spaces</td>
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</table>

### Table 1-3 Public Life in Public Spaces

<table>
<thead>
<tr>
<th>Type</th>
<th>Sub-category</th>
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</thead>
<tbody>
<tr>
<td>Public service centers</td>
<td>Commercial</td>
</tr>
<tr>
<td>Public life in urban centers</td>
<td>Community</td>
</tr>
<tr>
<td>Public life in residential areas</td>
<td>Residential</td>
</tr>
<tr>
<td>Public life in public spaces</td>
<td>Public</td>
</tr>
<tr>
<td>Public life in parks, squares, etc.</td>
<td>Green</td>
</tr>
<tr>
<td>Public life in public spaces</td>
<td>Heritage</td>
</tr>
<tr>
<td>Public life in parks, squares, etc.</td>
<td>Recreation</td>
</tr>
</tbody>
</table>

1.2.3 Urban Public Open Space

Public life in public spaces is desirable for people and good for societies (Carr et al., 1992). Public spaces can offer relief from stresses, providing opportunities for relaxation, entertainment and social contact. People can discover new things and learn from others through public life (Carr and Lynch, 1968; Ward, 1978). Urban regeneration has been accompanying urban development since the earliest human settlement, and was emphasized after the World War Two. Decades of urban regeneration and billions of dollars forced the decision makers to realize the importance of urban image, quality of life, and urban environment, which were recognized as prerequisites and catalysts for the economic development of cities.

Nowadays the quality of urban space has become a prerequisite for the economic development of cities. The details of urban space regeneration designed to improve the quality of life, and it has involved the use of urban public space in urban planning.
Beijing is the capital of China and one of the most populous cities in the world, with a total population of 21,150,000 as of 2013. The city proper is the 3rd most populous in the world. The municipality, located in northern China, is governed as a direct-controlled municipality under the national government with 16 urban, suburban, and rural districts. Beijing Municipality is surrounded by Hebei Province with the exception of neighboring Tianjin Municipality to the southeast; together the three divisions form the Jingjinji metropolitan region and the national capital region of China.

Beijing is the second largest Chinese city by urban population after Shanghai and is the nation's political, cultural and educational center. It is home to the headquarters of most of China's largest state-owned companies, and is a major hub for the national highway, expressway, railway, and high-speed rail networks. The Beijing Capital International Airport is the second busiest in the world by passenger traffic.

The history of Beijing dates back three millennia. As the last of the Four Great Ancient Capitals of China, Beijing has been the political center of the country for much of the past eight centuries. The city is renowned for its ornate palaces, temples, parks, gardens, tombs, walls, and gates, and its art treasures and universities have made it a center of culture and art in China.
China has undergone rapid urbanisation during the last two decades, following economic and political reforms. Currently there is a nationwide consensus calling for a new type of urbanisation which is people-centred. Transformation of the urban development model is essential for expanding metropolises. As a global city, Beijing is facing major challenges including: excessive population growth; urban function upgrading; limited land for construction; socio-spatial transformation; social segregation; and deteriorating environmental conditions.

Since 1978, China has experienced rapid development because of the advancement of the ‘Open Door’ policy. The industrial sector grew faster than the agricultural sector and heavy industry grew faster than light industry, which formed a lot of heavy industrial cities. Beijing is a lot of urban environment and urban space usage problems. Beijing represents one of these cities, and there is a lot of waste space in Beijing, such as the old railway, the bottom of the bridge, unused riverway, etc. Unreasonable space utilization will not only lead to traffic problems but also lead to environmental problems.

Urban space waste management is a crucial component of our constant interaction with the environment within and around our cities. Managing waste space efficiently and sustainably is a unique challenge for us all that depends on development trends, socioeconomic composition, political situation, and a host of other factors.

2.3. Existing Site Conditions

2.3.1. Beijing Urban Development

Figure 2.3 Beijing Urban Development

http://www.lib.utexas.edu/maps
2.3.2. Beijing Urban District Zone

Beijing municipality
Districts and their classifications

- Inner core districts
  1. Xuanwu
  2. Tiananmen
  3. Dongcheng
  4. Chaoyang

- Outer core districts
  5. Guanzhong
  6. Tongzhou
  7. Shunyi
  8. Miyun
  9. Shijingshan

2.3.3. Beijing Transportation (Subway) System Development

Figure 2-4 Beijing Subway System Development
2.3.4. Climate in Beijing

Beijing is a typical temperate climate city of China, where the summers are warm to hot and the winters are cool to cold.

The coldest month is January at an average of -9 °C (15 °F), and the hottest month is July at an average of 31 °C (87 °F).

75% of the annual precipitation is concentrated in summer from June to August, with frequent showers in July and August.
3.1. Center Zone and Periphery Zone

Chapter 3
3.2. Physical Character Studies

- A river pass through, but lack of connection to both side
- A subway station nearby the river
- Most of the surrounding are residential, inclusion of educational and institutional facilities
- Lack of organized public green space nearby for local residents to enjoy public life.

Two riverside: residential (orange) + industrial (blue)

The city meets river and green space

The river cross over the city
Figure 3-4 Elements of the Site

3.3. Elements of the Site

- Edge (Boundary)
- Path
- District
- Node
- Landmark

New Path
New District Connection
New Node
New Landmark
3.4. Transportation of the Site

3.5. Programmatic Framework
Chapter 4

Exploring Architectural Firms

Field Operations

Field Operations is a rapidly rising group of landscape architects and urban designers. James Corner is also the chair of Department of Landscape Architecture in University of Pennsylvania. Corner is known for being a key figure in the revival of Landscape Urbanism, following Ian McHarg's ecological planning school of UC Penn. James Corner Field Operations' landscape projects have drawn great attention from both academic and professional areas. They have been awarded prizes in recent design competition in North and South American cities. Despite of successful international collaboration, James Corner Field Operations was named one of the world's most innovative companies by Fast Company (2012) and one of the most influential design firms by Time (2010). Their influential works are categorized as part of the new thoughts in Landscape Urbanism.

Ecological Urbanism

Ecological Urbanism is a new discourse that is not yet fully understood. It deals with the duality of ecology and city. It stimulates new design thinking and alternative ways of professional practices. James Corner has observed some cutting-edge thoughts from the fusion of ecological technology and ecological solutions for urban environments. It is different from the passive way of protecting environment and nature. It takes "design" as a progressive way to create opportunities of ecology. Facing global urban sprawl, climate change and sustainable strategies, especially the rapid urbanization in China, you can see more contradictions between architecture, development and natural environment. Ecological Urbanism may be more realistic than many others. It would provide a new way of thinking to China's architecture and urban design professional practices.

Jason Long, OMA

Jason Long joined OMA in 2010 and has been based in OMA New York since 2013. He has longstanding experience with public space planning, from his early involvement in AMO strategic masterplans for Beijing Preservation and Shanghai Planning to the recent winning competition scheme for the Miami Beach Convention Center District.

Hallie Boyce, Olin

A Partner since 2009, Hallie Boyce has seventeen years of experience in the field of landscape architecture and urban design. Her focus is the design of places in the public realm that promote community building and public health through the engagement of urban ecologies and natural systems.
4.1. Case Study 1 — the river enhancement
Qianhai Water City

Qianhai Water city, located on Shenzhen (China)’s west coast, the site forms part of a strategic master plan that transforms over 33,000
capital city, the squares in the central city of Dalian are divided into the following categories:

Transportation Square (T): refers to the squares that are located near the airport, railway station or dock, or the squares at the crossing of several roads.

Commercial Square (Co): refers to the squares that were surrounded by shopping malls or other kind of commercial facilities, and act as the buffer area for surrounding buildings.

Recreation/Tourism Square (R): refers to the squares that act as a tourist attraction and provide informal recreation space.

Commemorative Square (C): refers to the squares that were built to recognize some memorable historical events or personalities.

Evacuated/Green Space (E): refers to the squares that are located in front of buildings, some of these squares are covered with lawns, and are accessible to the public.

Municipal Square (M): refers to the squares that are located around the political centre of the city. This kind of square usually can provide a place of communication between the municipal government and citizens.

According to the function, the squares in the central city of Dalian can be divided into the following categories:

Municipal Square (M): refers to the squares that are located around the political centre of the city. This kind of square usually can provide a place of communication between the municipal government and citizens.

As shown in Table 4-1, of the 32 squares in the central city, 15 (46.9%) are transportation squares; 13 (40.6%) are recreation/tourism squares; 5 (15.6%) are commercial squares; 4 (12.5%) are commemorative squares; 1 (3.1%) is a municipal square.

The proportional breakdown of the major classification of squares in the central city of Dalian is shown in Figure 4-2.

Table 4-1 Classification of Squares in the Central City of Dalian

<table>
<thead>
<tr>
<th>Function</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>15</td>
</tr>
<tr>
<td>Recreation/Tourism</td>
<td>13</td>
</tr>
<tr>
<td>Commercial</td>
<td>5</td>
</tr>
<tr>
<td>Commemorative</td>
<td>4</td>
</tr>
<tr>
<td>Evacuated/Green Space</td>
<td>1</td>
</tr>
</tbody>
</table>
4.3. Case Study 3—the bridge
11th Street Bridge Park

The design team was asked to transform an aged-out freeway bridge into a civic space over the Anacostia River. “The 11th Street Bridge project is a special precinct in the structure of the City.” It is to once be a crossing and place. In its purest role it is a hyphen that connects and celebrates the physical and cultural histories of two historic and vibrant Anacostia shoreline communities, while establishing a civic expression of democracy. The 11th Street Bridge project is enormously exciting, not only as a means of building community and improving quality of life, but also as a strategy for promoting health.

The design of the bridge pulls the two ends of the bridge upward to form an X-shape, providing shelter for programs such as a performance space and café, as well as plenty of open space for plazas, lawns and urban agriculture plots. This manipulation of the form also turns the thoroughfare into a destination all of its own above the river.

http://www.bridgepark.org

Figure 4-3 SITE PLAN
4.4. Case Study 4— the garden intervention
Santa Monica’s New “Garden” Park
PALISADES GARDEN WALK • TOWN SQUARE

Native and locally adapted plants work hilltopography for maximum display

Dramatic seasonal changes

Bold and unique forms and shapes showcase extraordinary plants

4.5. Case Study 5— the garden city
“Garden City of the 21st Century” in Hamburg
KCAP & Kats & Herbert

The design will accommodate a total of 5,300 apartments, 180,000 square meters (1,080,000 square feet) of small industry space and nearly 200,000 square meters (2,150,000 square feet) of diverse public landscapes.

A variety of housing typologies have been placed in the center of the district, with green spaces and landscape extended outside the site in the form of fingers. A small plaza will contain a school and an artificial lake, linked to its surroundings through a boulevard. Housing and commercial functions will transition into alternative uses as the district reaches the rail zone located at its perimeter.

The central lake, an integral part of the design’s “green-blue” network of greenery and waterways, also plays a role in the neighborhood’s overall sustainability, serving as a basin for rainwater and energy management.
SECTION II: Practicum

Chapter 5

Design Program and Process

5.1. Figure Ground and Usage Patterns

Figure 5-1 Figure Ground and Usage Patterns
5.2. Program Systems (Concepts)

- New Green Space Buffer Zone
- Green Garden Space
- Connection Between Both Sides
- Pedestrian + Bike Lane System
- Community Public Space

5.3. Concept Model
5.4. Program Site Plan

5.5. Program Elements

- Entrance
- Community Center
- Small Parking Lot
- Sculpture Garden
- Children’s Playground and Basketball / Volleyball Court
- Community Garden
- Water scape
- Skateboard Park
- Pavilion
- Landscape Corridor
- Shading
5.6. View Through the Garden

- Comfortable relaxing zone
- Sustainability landscape design
- Designing for lighting
  A detailed lighting design strategy is required.

Activate the site with water
Activate or calm the feeling of the site with water features and attractive stormwater management.

- Art sculpture
- Details + material selection

5.7. View Through the Buildings
5.8. New Green Space Buffer Zone
Stormwater runoff is collected and treated before entering the major waterway. This process is demonstrated and included in the park program and new green space buffer zone.