Urban Waterfront Landscape Planning

By Diyun Hou

Master's Thesis for

European Spatial Planning and Regional Development

Supervised by Katinka Schartau

Blekinge Institute of Technology

Karlskrona, Sweden 2009

Content

Content.....2
Acknowledgement……4
Abstract……5
Methodology……6
1. Summary of waterfront landscape theory……7
1.1 The importance of water in design 7
1.2 The definition of the waterfront landscape and interrelated concepts ...8
1.2.1 The definition of waterfront area.....8
1.2.2 The definition of urban landscape.....8
1.2.3 The extent of waterfront areas.....9
1.2.4 Landscape architecture.....9
1.3 The structure of waterfront landscape.....10
1.4 The characteristics of waterfront landscape.....10
2. The planning of waterfront landscape……12
2.1 The content of waterfront landscape……12
2.2 Principles of planning 13
2.3 Theory research development in waterfront landscape planning in western countries and in China……15
2.3.1 Background of research in western countries.....15
2.3.2 Background of development in waterfront landscape.....16
2.4 Waterfront landscape characteristics……17
2.4.1 Characteristics in western countries.....17
2.4.2 Characteristics in China.....19
2.5 Development trends 21
3. Jinji Lake in Suzhou……22
3.1 Introduction of Suzhou and Jinji Lake.....22
3.2 Division of the space 23
3.3 Traffic system 26
3.4 The details of Jinji Lake ……28
4. Western Harbor in Malmö……30
4.1 Introduction of Malmö and Western Harbor.....30
4.2 Questionnaire result 33
4.3 Space division.....35
4.3.1 Former Kockums area.....37
4.3.2 Crane.....38
4.3.3 Bo01 exhibition area.....38
4.3.4 Bilen 4 and Bilen 5.....39

4.3.5 Universitesholmen and Former Saab Factory 39
4.4 Ecological sustainability 39
4.5 From industrial port to new residential area 41
4.5.1 Sundspromenaden.....42
4.5.2 Dania Park.....44
4.5.3 Ankar Park.....45
4.5.4 Housing 46
5. Conclusion……47
5.1 The comparison and existing problems of the two cases .....47.
5.2 Some designs in the two cases 48
References 51
Appendix……52

Acknowledgement

This thesis owes its existence to the help, support and inspiration of many people.

I would like to express my sincere and deep appreciation to my supervisor Katinka Schartau who has given me a lot of support and valuable comments on my thesis. Katinka is patient in helping me deal with various difficulties through the whole process. Under her guidance, I am able to finish every process of this research.

I also want to thank Professors Jan-Evert Nilsson and Lars Emmelin for their valuable feedback and comments of my thesis; they recommend me the ideal of the case in Western Harbor.

I want to acknowledge the help received from Eric Markus. He has offered a lot of help during this year at BTH in Sweden. Without his help, I would not be able to finish some of courses and my thesis.

Finally, I want to thanks my family and friends who are always supporting me and giving me strength.

Abstract

As a high quality green belt in the city, the city waterfront landscape is the most vivid and comfortable place. For citizens, it is also the most attractive place to live in. A good city waterfront landscape can update and maintain by itself. Therefore, we can not only treat the urban waterfront area just as a beautiful landscape in aesthetic aspects, but we should also understand it in deeper and broader dimensions.

The urban waterfront landscape directly affects the urban structure, the urban ecological environment and the life quality of residents. By analysizing the two cases, Western Harbor in Malmö and Jinji Lake in Suzhou China, we can find out the results.

Through the discussion of this subject, we hope that the urban waterfront landscape could be a harmonious system with the artificial and natural landscapes which are based on scientific and artistic aspects.

Methodology

This thesis aims to find out how to make the waterfront landscape attractive for citizens. To find out the results, I do the case study in two different places: Western Harbor in Malmö and Jinji Lake in Suzhou. The two research questions that I want to answer are how to make the waterfront area attractive, and how to separate the space and make the space system logical.

The study objects are Western Harbor in Malmö and Jinji Lake in Suzhou. Jinji Lake is 7.4 square kilometers in Suzhou industrial area. It's surrounded by eight parts. Western Harbor is the second case study in the thesis. In this part, I will explain how the Western Harbor is rebuilt; especially focusing on the B01 exhibition area.(Suzhou City planning Office, 2003)

I read the book titled Landscape Architecture of Waterfront written by Tang Jin. In this book, the author gives comprehensive explanations of the waterfront area.

Another book that I read is Urban Space Theory, the authors of this book are two Japanese men named Yoshinobe Ashihara and Kisho Kruokawa. Their theories are about spatial scale, urban architecture and some definitions. These will be mentioned in the second chapter.

In the fourth chapter, I give out the questionnaires, make interviews, and send the questionnaires out to passersby in Western Harbor. Afterwards, I collect the data, and then find out the reasons and results.

1. Summary of waterfront landscape theory

1.1 The importance of water in design

The ancient societies grew up in waterfront areas, such as next to the Nile, the Tigris and the Euphrates, so it's the headstream of lives and everything on Earth. Waterfront landscapes are the most attractive landscapes, because they are the most integrative and difficult to plan. People always love to live close to water, and the famous ancient cities are all located in waterfront areas. Water is a good natural defense as well. As a place with high density of people, waterfront area can provide water and convenient traffic to the inner city.

Although waterfront areas were flourishing before, industrial civilization made the waterfront areas much worse, water was polluted and nature system was destroyed. Waterfront areas were full of noise, dust and polluted water, because of the development of the economy.

How to meet the need of waterfront landscape is a big problem in the current process of globalization and urbanization. People become aware of the advantages of waterfront areas. So people want to find the answer of these three questions:

1. How to improve the quality of the existing waterfront landscapes?
2. How to make full use of the functions in the new waterfront areas? The functions include residential areas, tourism spots and nature reserves.
3. How to divide the space well?

A successful waterfront landscape project can offer a lot of benefits to citizens. It can improve the environment of waterfront areas, rebuild a good appearance of the city, increase the revenue, offer some job opportunities and accelerate new investments. In a word, it is good for the development of city in many aspects.

1. The requirement of economic development

Many countries pay attention to the development of waterfront landscape, such as New York, London and Toronto. They get many benefits. That is because waterfront areas usually can attract investments.

2. The requirement of citizens

People want higher quality of living places, so waterfront areas are the most attractive place for residents. People are willing to pay higher rent for the high living qualities.

3. The requirement of landscape aspect

The waterfront area is the most important place in the city. It can show and strengthen the ecological diversity, and it can also improve the climate of the

inner city and accelerate the development of the city.

4. The requirement of sustainable development

It usually takes a long time to make a good environment. So a reasonable plan is very important, it affects the existing resource, water and ecosystem.

1.2 The definition of waterfront landscape and interrelated concepts

1.2.1 The definition of waterfront area

The waterfront area is the confluence area of water and land. It is not only the edge of land but also the edge of water, and the land should cover some areas. This concept illustrated in Figure 1. It is with the highest density of elements and human activities. They affect each other greatly. In Princeton University online dictionary, it's explained as the area of a city (such as a harbor or dockyard) alongside a body of water.

Figure 1
Source: drawn by author, 2009

Most of the waterfront lands are like belts along the coastlines. People want to make use of these areas, so planners begin to think of a way to make it attractive for people. How to connect traffic, establish different functions, and how to communicate with inner cities are the main problems.

1.2.2 The definition of urban landscape

In geographical aspect, the urban landscape is a synthesis of climate, soil,

biology and physiognomy. If it is explained in an ecological aspect, it is an ecosystem of correlative space. The most popular explanation is that it is the collection of integrated elements in the space of cities, including landscape elements, functional characters and cultural character, and most importantly, the activities of people. The essence of a city is to make the city convenient for people to live. An integrated landscape includes artificial landscape and natural landscape. The artificial landscapes include architecture, streets, squares and so on.

1.2.3 The extent of waterfront areas

The extent of waterfront areas refers to how large area a waterfront area can be. In different places, this question is answered differently, because it depends on many things, such as history, culture, city planning, economic development and climate. In the book titled Landscape Architecture of Waterfront, the landscape area is defined as a land 100 feet to 5 miles in front of shoreline. In my opinion, the landscape area can be defined by the citizens who live in the city, because they are the users in that waterfront area. After the research I think 200 to 300 meters is the usual range. (Tang Jian, 2007)

1.2.4 Landscape Architecture

Landscape Architecture first came out as a trend in the middle of nineteenth century; the development of city parks during this time especially accelerated the development of this subject. At that time, the Europe and Landscape Garden concept from England affected this subject a lot. So the traditional phase like Landscape Gardening and Landscape Gardeners were used abroad.

Before the occurrence of Landscape Architecture, the words landscape and architecture were used separately. The name Landscape Architecture was named by Frederick Law Olmsted and Calvert Vaux. In 1860, a committeeman from New York named Henry H. Elliot sent a letter to the city council, and in the letter he mentioned the Central Park in New York and the designers Frederick Law Olmsted and Calvert Vaux. At that time, many landscape designers did not like the name of landscape architecture, so parts of them still referred to themselves as landscape gardeners, such as M. Kem and A. Strauch. B. J. Faltand. The inaugurators of ASLA (American Society of Landscape Architects) also call it landscape gardener, while other people prefer the name landscape designer or landscape engineer. In 1900, Harvard University established a program called landscape architecture; soon other universities followed and also established this program. In 1948, IFLA (International

Federation of Landscape Architect) came into existence, so the words landscape architecture and landscape architect were accepted by people now. (Breen, A& Rigby, D, 1996)

1.3 The structure of waterfront landscape

The waterfront landscape can be separated into three parts:

1. Landscape water body.

This includes water plants, life-forms and other things in the ecosystem. There are also some artificial landscapes, such as bridges and lighting.

2. Areas close to water.

Examples include waterfront squares, footpaths, architecture, landmarks, lighting and some artificial landscapes. There is usually a greenbelt to make the water look beautiful.

3. Human activities. People can do some activities on waterfront areas, such as recreation or having a picnic.

Waterfront landscapes can be separated by artificial and natural landscapes:

1. Natural landscape, such as water and plants.
2. Artificial landscape, such as footpath and waterfront square
3. Cultural landscape, such as historical heritage and related stories.

1.4 The characteristics of waterfront landscape

Urban waterfront landscape plans are the most complex and difficult plans of all the landscape plans. Generally, it consists of a greenbelt, architecture, landscape arrangement and shorelines. A waterfront area is closely related with water, so it has different landscape characteristics from other places. It has five characteristics:

1. Natural biological aspect

The structure of water system contains atmosphere, hydrosphere, and biosphere which are made up of soil and geology, of course there are also some communities which include animals, plants and microbes. Compared with other parts of the city, waterfront areas have less changes, especially in Europe where the environment is well protected, they are not polluted much. In some developing countries, the situation is serious. In Nanjing China, Green Algae grow rapidly. Suddenly it covered a large face of the water in Xuanwu Lake, and after the investigation, people find out that it was put in by planners to restrain another plant, but algae did not have any natural enemies in that

lake, so it quickly grew out of control.

2. Public aspect

Waterfront areas are the most public areas. In an ecological aspect, the nature of waterfront area makes the ecosystem balanced. In the economic aspect, waterfront areas have high quality spaces, such as green belts, squares and sometimes sand beaches. These are often established areas for shopping, taking a walk and relaxing. In China, waterfront landscapes are usually very important in the cities, and the government often build a large-scale planning as a land mark of the city.

3. Historical cultural aspect

Many years ago in ancient times, many of the urban waterfront areas were the original places for people to live. It became the first place to be developed; it greatly affected the development of cities. Water is also the door to communicate with other cities in transporting, trading, information and culture, at that time all the transportation was done on water. So the culture emerged first in the waterfront areas.

4. Diversity characteristic

Diversity characteristic can be seen in three aspects. In physiognomy aspect, it's made up of water, field, and superposition. In spatial division aspect, it includes architecture, city and landscape. In ecosystem aspect, it is made up of system in water and system on lands. So the natural landscape in waterfront areas is abundant.

5. Characteristic aspect

In Kevin Lynch's famous work, *The Images of the City* published in 1960, he said that space has five elements:

1. Paths, such as the streets, sidewalks, trails, and some other channels;

2. Edges, perceived boundaries such as walls, buildings, and shorelines;

3. Districts, relatively large sections of the city distinguished by some identity or character;

4. Nodes, such as focal points and intersections;

5. Landmarks, readily identifiable objects which serve as reference points. Channels are the easiest one among these that people can feel; waterfront space is the most obvious channel. (Kevin Lynch, 1960)

2. The planning of waterfront landscape

2.1 The content of waterfront landscape

Waterfront landscape is a mixture of natural and artificial things. Nowadays, artificial plan and design is the main way that people usually use.

The main contents in landscape design in waterfront area are:

1. The overall division and programming of functions.

Using the overall division and programming of functions, landscape architects can make good use of the land well, create reasonable landscape programming. This is the basic step after researching the area.

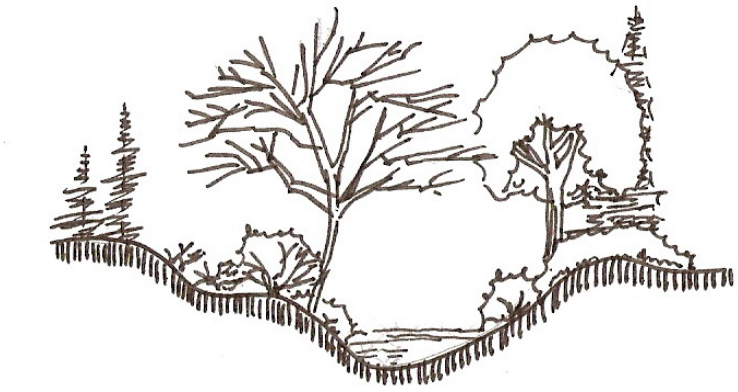
2. Traffic programming

This is how to connect the traffic outside and inside of the waterfront area together.

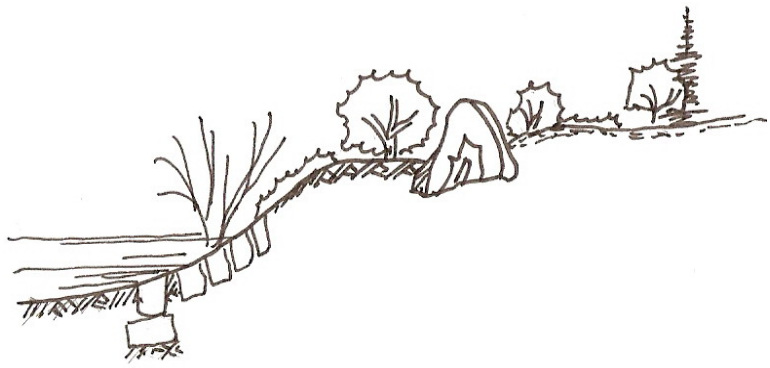
3. Shoreline

There are different configurations of the shoreline.

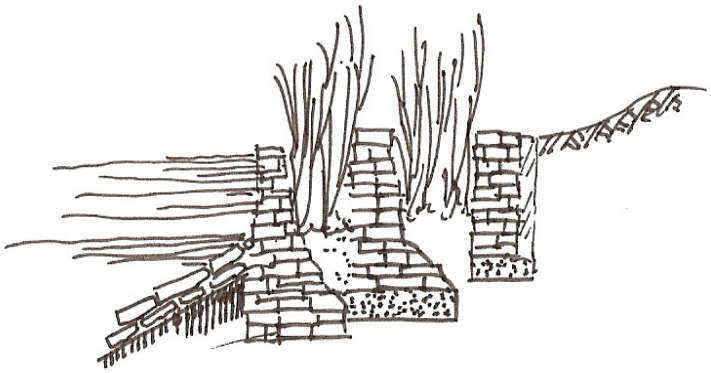
Figure 2, 3 and 4 illustrate three configurations of the shoreline:



Original type



Natural type



Emulation type

Figure 2, 3, 4
Source: drawn by author, 2009

4. Some details such as pavement and statues can show the history and culture of this waterfront.

The waterfront areas should have six functions: trade, relaxing recreation, education, environment, residence and open port.

2.2 Principles of planning

To make the waterfront area more reasonable and comfortable for citizens, we usually need to follow these principles:

1. When we plan the waterfront area, we need to think about the plan of the inner city, which needs to base on the overall city planning.

After the overall city planning, planners will know which land will be used as waterfront land.

In traffic aspect, the traffic should be firmly connected with the traffic in the inner city. Complementarities are also a way to renew the landscape in the future.

2. Sustainable development principle

Sustainable development can be explained in four aspects.

First, sustainable development in a biological aspect:

How to keep balance of the ecosystem of the animals, plants, soil and water is the main problem in city planning. Therefore, how to optimize the ecosystem is a great subject in planning.

Secondly, sustainable development in the economic aspect

A lot of waterfront areas were previously industrial areas, so some areas next to the water are polluted. On the other hand, the structure of architecture

is mixed up. So it is often necessary to change the structure of economy, by making the area a multi- economic area which includes culture, residence and sightseeing.

Thirdly, sustainable development in the social culture aspect

How to renew the waterfront area and represent the connotation is the core of planning.

Fourth, sustainable development in the technology aspect

Some problems in planning can be solved with technology such as energy, traffic and engineering. Planning can be made more systematize and scientific.

3. Diversity principle

“Diversity” can mean many things, such as diversity in function, diversity in space and diversity of different classes of people. Diversity in function accelerates the diversity of people’s level by bringing new life styles to the city. Diversity is based on people’s needs. Nowadays, people require more and more, so the planning should be diversity to meet people’s needs. Waterfront land is a desirable place, so it’s seldom used for some people, such as for older people or children. However it should be for people of all ages, so it needs integrated functions.

4. Pay attention to the mixture of tradition and modernization

There is an adage in China- “the more traditional the more beautiful”. There are two ways to mix the tradition and modernization; one is to use some traditional details in modern planning, another is to use modern details in traditional plan. Both of these ways is a basic ways to plan.

5. Keep close with water

People are born to love water. Some years age, the riverbanks were high and thick, block off people and water. Now people can handle the water well, so they like to be as close as possible. According to the demand of the citizens, some big steps close to water are often designed.

6. Elevation drawing

When we do the planning, we can not just do the plane planning, but we should also consider the vertical face. It is just like when we draw the pictures; we need to draw the ichnography, plan and also the elevation drawings.

Elevation planning has many functions: sometimes it can separate a land as the figure 5 shows. The Western Harbor also uses this way to separate the land, which will be explained in the fourth section.

Figure 5
Source: drawn by author, 2009

7. Advanced technology principle

As technology develops, people need something now, something they do not see before. So many new kind of materials are used, such as water screens and laser light fountains. (Gu Yi & Cheng Tian, 2006)

2.3 Theory research development in waterfront landscape planning in western countries and in China

2.3.1 The background of researching in western countries

In 1980s, many countries re-explored their waterfront areas, such as the USA, Canada and UK. In 1988, Hoyle wrote a book titled Revitalizing the Waterfront; which is the first book to make comprehensive research of the global re-exploration of waterfront areas. In the book, the author mentions several articles about geographers, economists and city planners. In theoretic part, investigators pay focused on the driving elements of exploration in waterfront areas. In other parts, there are several examples to do the North American situation. There are also some analysis of detailed cases, such as Toronto, Rotterdam, Manchester and Hong Kong. (Hoyle, B, 1988)

Waterfront Centre was established in D.C. in 1981, and aims to help experts make the most of recourses in waterfront areas. Nowadays, the Waterfront Center has its own magazine and publication; it chooses the best waterfront item based on public appraisal. Their most important publication is the

Waterfront World which is published every month.

Another famous research center is called the International Center Cities on Water, and its head quarter is established in Venice. It aims to enable waterfront cities to communicate with each other. This organization celebrates scientific meetings once every year and publishes books. In their annual book, the attendees of waterfront areas give their comments on the projects. Some cases are debated furiously, such as the exploitations in Toronto, New York and London.

At the same time as western countries, Japan also shows their interest in waterfront areas. But different from western countries, Japan fills the water with soil in order to change water to land, which is because of the small land and construction of port.

In the 1980s, the Japanese wanted to redevelop their ports. So they discussed, did researches and studied case in many other countries. In these meetings and researches, the important events included Yokohama Japan waterfront international meeting which was held in 1986 and Osaka international meeting held in 1990. (Breen, A& Rigby, D, 1996)

Some famous western architecture magazines pay attention to waterfront landscape from 1980s, and they publish specials about waterfront landscapes. Architectural Review in the UK published three specials in 1987, 1989 and 1990, other magazines such as Process Architecture in Japan published in 1984, Architectural Design in UK published Architecture & Water in 1995 and Landscape Architecture in USA published New Urban Landscape in 1991.

2.3.2 The background of development in waterfront landscape

The development of urban waterfront landscape is a historical process. In many European cities, the process of development of urban waterfront area is like this: prosperity, decline and re- development.

Before 1920s was the flourishing time of urban waterfront areas. Before the industrial revolution, the society was developing, people depended on natural water sources, and the water was used for daily lives and for travel. With the development of traffic on water, waterfront area was very important for a city because of trading, so it became a very active place and the center for many people’s lives.

From the 1930s to 1960s, urban waterfront areas declined. After the industrial revolution, the population grew rapidly; many modern industrial companies and transport companies where located along the water to get more benefits. Much sewage rushed in and polluted the water, and inhabitants no longer wanted to live there anymore. Government also invested in other

areas. In the 1970s, many industrial businesses turned to the service industry, and the techniques of purifying water were improved. For citizens living in the cities, the needs of water and greenness were growing quickly. The re-exploitation of waterfront area developed quickly too, and the landscape improved rapidly.

2.4 The characteristic of the waterfront landscape

2.4.1 Characteristics in western countries

The thought of world urban waterfront planning originated in the United States. In the late 1980s, Boston Common Park located near the Financial District and Beacon Hill, is the oldest public park in the United States. At first, it is not a park; it was used for grazing and military affairs. Along with the adjacent Boston Public Garden, it is part of the Emerald Necklace, a string of parks designed by a famous designer called Frederick Law Olmsted (1822-1903). Franklin Park, which is also part of the Emerald Necklace, is the city's largest park. The Emerald Necklace is the crown of jewel urban waterfront planning. (Travel. Westca.com, retrieve on 2009)

Figure 6

Source: http://www.thebrooklynnomad.com/?p=584, retrieved in 2009

The figure 6 is taken in Boston Common Park; it shows the function of the park. A sight-seeing boat with a swan goes along a lake in the Boston Common Park. In the summer, people do sunbathing, and in the fall, people play in the falling leaves.

There are three aspects that planners need to focus on, they are as follows:

First of all, they should pay attention to the overall planning, and re-orientated the functions and overall arrangement, to improve the landscape of waterfront areas.

Let us take the Seine in Paris as an example. After repairing the river way, building dykes and bridges, cleaning the river bed and developing the greenbelt, the Seine looked brand new. Based on the city is overall plan, planners re-orientated to focus on waterfront area. Twelve kilometers along the river was cut into three sections: A, B and C. Part A is a tourism area, in the city center, where there are lots of historic sites and cultural relic, so this part is related with the cultural landscape. Part B is a tourism and business area. Part C is an industrial area; the factories which are now in other places were settled in this area. This was a successful project in that time. (Seine River Basin, 2009)

Another example is the River Thames plan, where planners also reinstalled the functions of Thames. The traditional function of the Thames was for irrigation. To the west of the river, there are lots of historical and important architecture, parks, and bridges; all these make the tourism industry flourish. Now the landscape on both sides of the Thames is what London is known for. Because of the location and the wide breadth, the Thames function is not only for transportation but also for tourism and environment. The Thames plan improves the environment of London and creates a pleasure environment for the entire. It is now the cleanest river in Europe, but many years ago, it was a polluted river and the headstream of illness. These two examples show the importance of overall planning. (Wang Dongying, 2007)

Second question is how to present its own characteristics. Because the waterfront areas are public areas, the structure of architectures should be different from others. It’s hard to make sure that the landscape is appealing from different directions. In China, there are many traditional water towns in the southern part (figure 7). With the development of cities, richer people moved to modern apartments or houses, so poorer people were left here. They found a way to make money. By making their house tourist attraction, several years later, the entire town becomes a sight-seeing destination.

Figure 7
Source: www.izy.cn, retrieved in 2009

Normally, waterfront landscapes cannot be straight lines along the water; it needs some bigger spaces, such as squares and parks. Or else people will feel bored with it. The spaces need several big points to attract people. Lines need points to attract tourists. (Figure 8)

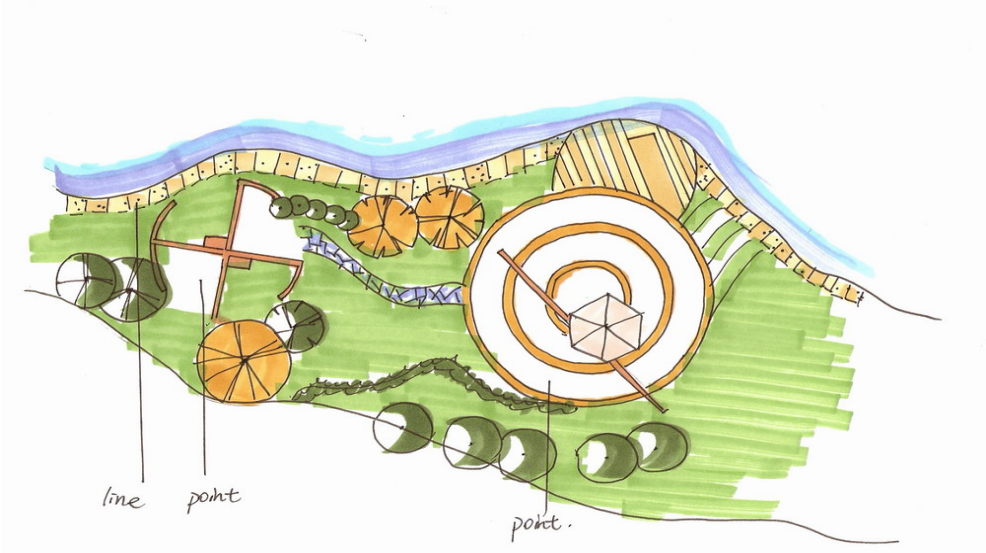


Figure 8
Source: drawn by author, 2009

Finally, many waterfront areas become the main axis of the city. Waterfront areas are often big contributors to the history of the city, such as the Thames, Rhine and Seine. This makes the waterfront public areas more attractive. The establishment of waterfront areas gives people a wonderful place to relax or exercise. Now waterfront areas are very important to a city, such as the park around the River Charles in Boston America. Many waterfront areas become

the landmark of the city; it is not only because there are a lot of famous architecture, but also because they have some good characteristics. It can meet many requirements of people's functions.

2.4.2 Characteristics in China

Because of the economy, the development of waterfront landscape planning in China lags behind western countries. Recently, however it has developed quickly.

In China the purpose of planning is different from western countries; China wants to drive the development of industry by building waterfront areas, so many of the waterfront areas are related with industries or companies.

To begin with, waterfront areas are divided into several parts based on the different functions, and then it can be managed separately, such as the Su Zhou River in Shang Hai and Old Canal in Wu Xi.

This is a picture in Su Zhou River of Shang Hai,

Figure 9

Source: http://news.xinhuanet.com, retrieved in 2009

Su Zhou River is quite beautiful now, but several years ago it is seriously polluted. In Shang Hai, there is a saying, Su Zhou River flows around every family, everyone can be the owner of it, and everyone can manage it. Now it's another Seine in Shang Hai.

The research of waterfront areas shows that people pay a lot of attention to details, especially in the form of greenbelts. Mix big trees, bush and grass together, mix many kinds of plants together, so the waterfront area has a lot of biological diversity. In different countries the forms of greenbelts are different.

Figure 10 was taken in Italy, where the tall trees look like broccoli. Figure 11 is taken in Hang Zhou China. The elevation can be separated into three levels-high, middle and low. It is like plants in tropical rain forest.

Figure 10
Source: taken by author, 2008

Figure 11
Source: taken by author, 2006

Finally, China has its advantages in history and culture. So when designing a waterfront landscape; people never forget to add history and culture in it. They can be the mark of waterfront, such as the Old Canal in Yang Zhou. Along the river, there is architectures representing Buddhism, Taoist, Moslem, Catholicism and Christianity. This is a sightseeing corridor named “go with ancientry”.

2.5 Development trends

First, it is important to pay more attention to the planning of the function. Many ports and industrial areas turn into public waterfront areas; they are used as residence areas, official areas, relaxing places and tourism.

Second, attach importance to sustainable development. Strengthen the management of waterfront areas, especially on the ecosystem.

Last, the waterfront area development should catch up with the development of economy.

3. Jinji Lake in Suzhou

3.1 Introduction of Suzhou and Jinji Lake

China has the largest population and high density of population in world. There are 56 ethnic groups. Among these, Han is the biggest with the most people, and about 91.6% of the people in China are Han.

There are 23 provinces, four municipalities, five autonomous regions, and two special canton regions: Hong Kong and Macao. Suzhou is one province in China.

Figure 12

Source: www.szdnwx.net/mapchina.htm, retrieved in 2009

The red points on the maps show the locations of four municipalities and two special canton regions down in south. Different colors are used to separate different provinces. The shape of China in the map is like a rooster.

Suzhou is in the middle of China, south of the Jiangsu Province, close to Shanghai. Because of this, its development has some similarities with the development in Shanghai. It's about 8488sq.m; it's divided into 8 areas, with about 5.8 million people. Suzhou is a traditional water town; many famous arts and crafts came from Suzhou. Now it's a modern base for new technique industry, but it still keeps the characteristic of a water town.

Suzhou is surrounded by many rivers. Suzhou knows its advantages, so the government pays much attention to the tourism industry. The city is 2500 years

old; many parts of the city are cultural heritages. Suzhou gardens are the most famous cultural heritages. They are on the list of the World inheritance by United Nations Educational, Scientific and Cultural Organization (UNESCO).

From north to south are industrial area, residential area, business area, residential area and industrial in Figure 13. Jinji Lake is in the middle of the two medial axes.

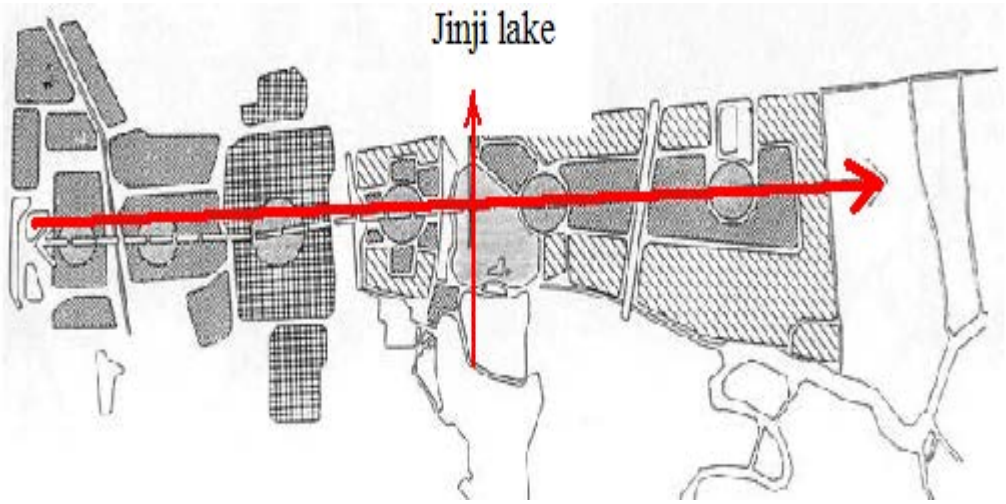


Figure 13
Source: drawn by author, 2009

Jinji Lake area is in the middle of the Suzhou industrial area. The area of the water is 7.38 square kilometers.

Jinji Lake area is the most important open space in the Suzhou Industrial Park. The overall plan tries to use less artificial elements in order to make people pay more attention on natural elements.

The project of Jinji Lake is planned by a famous company- EDAW. Suzhou Industrial Park Administrative Committee is in charge of the 70 square kilometers of waterfront areas. They aim to build a waterfront community with high- tech businesses and residences for people. After all the projects are completed, this area can house 600 thousand inhabitants.

In 1994, the government has already said the Jinji Lake should be planed. In the same year, there was a contract between Singapore and China to develop this area together. (Suzhou Industrial Park Administrative Committee, 2003)

3.2 The division of space

The Jinji Lake area can be separated into eight areas:

Figure 14

Source: http://lw.china-b.com, retrieved in 2009

A. Harbor Plaza. This is a square for congregation. It is to the west of the Jinji Lake. The square is connected with the waterfront corridors, and attracts people to come near the water. There are many types of statues on the square, which people enjoy.

Figure 15

Source: taken by author, 2007

B. The Grand Promenade. This is a park with green areas and slopes. It is special for the residential area; it is suitable for the residents to have a rest or play with their dogs. (figure 16)

C. Marina Cove. This is a beautiful residential area. In most parts of China,

the density of residential area is very high. For example, there are 20 million people in Shanghai, while there are only 9 million people in all of Sweden. But the density here is not very high, and it is close to the highway to the airport. There is water all around the residential area, so Marina Cove can be seen as a high quality residential area.(figure 17) (Hu Zuoan, 2003)

Figure 16
Source: taken by author, 2007

Figure 17
Source: taken by author, 2007

D. Reflection Point. This is a nature reserve area for students to study plants. There is a lot of biological diversity in the greenhouses and flower showing areas. Although there are not many tourists, it is very important to protect this area.

Figure 18
Source: http://www.landscapecn.com, retrieved in 2009

E. Reflection Gardens. This is also a residential area like Marina Cove with water and public green lands. In the south of this area, there is a big river, so the view from the house is perfect, and the quality of this area is even higher

then Marina Cove.

F. Arts and Entertainment village. This is an art and entertainment centre. Many people will go through this area, so it is a public area which wants to attract people to stay.

G. Mirror's Grossing. Around this area, there are walkways and normal density residential areas. In order to give prominence to the Jinji Bridge which is as long as 400m, planners put this green land here. And this is also for residents nearby to have a rest. (figure 19)

Figure 19
Source: taken by author, 2007

H. Discovered Island. This is an artificial island in the middle of the Harbor Plaza and Arts and Entertainment Village. People can play games on the water here. On the island, some holiday establishments are only used in summer. (Qiao Quansheng, 2008)

Among these, most natural areas are the Discovered Island, the Reflection Point and the Grand Promenade. In Discovered Island, there are many bulrushes in the land along water; it is in order to clean the water in Jinji Lake. In Reflection Point, there is a natural island in south of the street to airport. It is used to protect plants and birds.

3.3 Traffic system

The traffic system in Jinji Lake can be divided into two kinds, one is on water, and another is on land. The surface of the water is a big corridor used to

connect with the eight parts; roads on land are well organized with a complex traffic system.

Most of the streets here are only for pedestrians, but the Jinji Lake area is very big, so only sidewalks hardly to meet the need of traffic, so big roads are necessary. The street for cars can be seen as the main structure of the traffic system; they connect all squares, parks, green lands and residential areas. Between the big and small roads, there are usually grasses to reduce the dust.

All the cars and pedestrians are well separated. The walking roads are for having a walk or tourism, connecting the entrances, squares and inner public lands. There are different kinds of paths: footpath, sidewalks with steps, rock paths and plank boardwalks built along water. Almost all these big roads are used to connect the eight areas. (Cao Jieyong, 2005)

As a waterfront area, the footpath along water is important. A good footpath can make people feel closer with water. The Grand Promenade is a place special for this feeling. The platform extends to water, and the depth of water often change, so there are two steps of platform, when the water rise, people can play water on the second step. The roads are designed with other establishments, such as lights, stools and steps. This can make the environment closer to people. (Figure 20)

Figure 20
Source: taken by author, 2009

The most interesting street in Jinji Lake is Ligongdi. It is to the south of Jinji

Lake, and along this street, both sides have modern restaurants and clubs. But the appearance of the buildings is traditional. The style of the building is like traditional residential buildings, and the main colors are gray, white and black. At night, lighting is used to make a fancy impression， so this road is called the colored belt of Jinji Lake at night.

Figure 21

Source: http://www.landscapecn.com, retrieved in 2009

Ligongdi can be divided into two parts. One is dynamic: there are bars, clubs, coffee bars and disco clubs. It attracts people in different age groups. The other part is static: there are spas, hotels and clubs. It aims to attract business people and VIP.

3.4 The details of Jinji Lake

Jinji Lake area has two aspects. It presents the culture and history of Suzhou, and it also represents the aim of being a modern city.

The size of each part depends on the function. The aim of the project is to be an international park, so it determines the big size. Planners also pay attention to the size. In the Grand Promenade is as long as 634 meters, and the street is as wide as 15 meters, divided into three steps. The part near the water is 9.4 meters wide, part one the other side is 4 meters, in the middle, there is a small path with green belts on either sides, which is 1.6 meters. This planning makes the Grand Promenade seen even more grandiose, and it is suitable to the big size of Jinji Lake.

Figure 22
Source: http://www.landscapecn.com, retrieved in2009

Traditional culture and history are always the pride of Suzhou. It's also used in design.

Figure 23, Source: http://www.landscapecn.com, retrieved in 2009

On this section of pavement, there is a phoenix which is a traditional animal in the story of China. A small water lily can also represent traditional details. There is a square named lunar calendar: there are twelve years per cycle, each year is related with an animal, so they caved these animals on the ground, and people can come here find the animal in their birth year.

The aim of the residential areas is to create different types of residential areas. Private vehicle are prohibited, and call for using public transportation, so residents can get a quiet environment.

Planners also aim to bring people close to the water. Platforms and stools that extend into lake encourage tourists to play in the water.

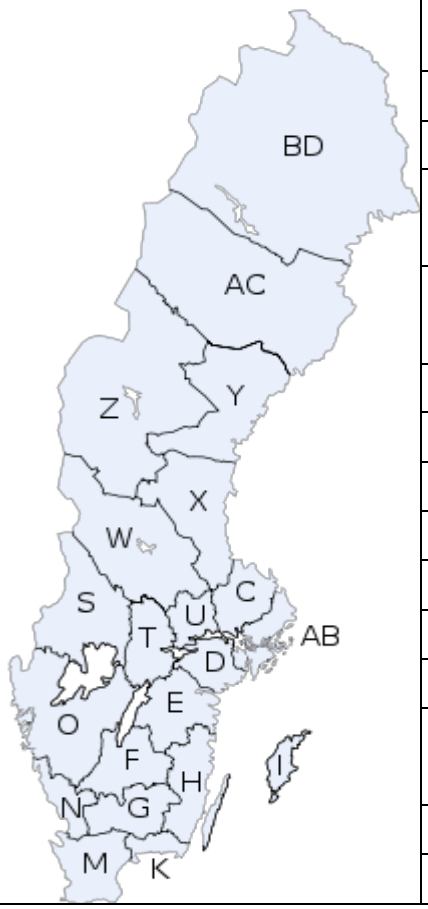
Because the government emphasizes that this area must be clean and ecological, water in Jinji Lake is almost the cleanest in china. They use advanced technology and materials to achieve this. Not only in the ecological aspect, but also in many other parts, such as glasses which are like armor plates, water screen fountain and LED screens.

4. Western Harbor in Malmö

4.1 Introduction of Malmö

Malmö is the third biggest city in Sweden. Sweden is in the northern part of Europe. Northern Europe is really the heaven of the earth. When we talk about northern Europe, it means Denmark, Sweden, Finland and Norway; it also can be called Scandinavia. Although the weather is very cold during a year, summer is cool and comfortable. Of the four countries, Sweden is the biggest. It has 449,964 square kilometers, and 64% of the land is covered by forest with very low population density. Because of the climate, 84% of the people live in 1.3% of the land. Sweden is a modern and democratic country. Citizens have a high quality of living standard, and the government pays much attention to environmental protection. The most important industry in Sweden is iron, copper, wood and it is rich in water, but it lacks oil and coal mines. It also has several famous companies, such as Ericsson and Volvo. (Wikipedia)

There are 21 provinces and 290 cities in Sweden, as displayed on the table below:



Code name	Province	Metropolis
AB	Stockholm	Stockholm
C	Uppsala län	Uppsala
D	Södermanlands län	Nyköping
E	Östergötlands län	Linköping
F	Jönköpings län	Jönköping
G	Kronobergs län	Växjö
H	Kalmar län	Kalmar
I	Gotlands län	Visby
K	Blekinge län	Karlskrona
M	Skåne län	Malmö
N	Hallands län	Halmstad
O	Västra Götalands län	Göteborg
S	Värmlands län	Karlstad
T	Örebro län	Örebro

	U	Västmanlands län	Västerås
	W	Dalarna län	Falun
	X	Gävleborgs län	Gävle
	Y	Västernorrlands län	Härnösand
	Z	Jämtlands län	Östersund
	AC	Västerbottens län	Umeå
	BD	Norrbottens län	Luleå

Source: Wikipedia, retrieved in 2009

In the east of Sweden, there are Baltic Sea and Gulf of Bothnia, so it has long ocean lines.

Not only Sweden, but the whole northern Europe is surrounded in water. So there are many waterfront cities. Figure 24 shows these cities.

Figure 24

Source: maps.google.com, retrieved in 2009

As figure 25 shows, Malmö is one of these waterfront cities. It is in the east of Baltic Sea; the Oresund Strait is opposite to Copenhagen which is the

capital of Denmark. Between them there is a very famous bridge called the Oresund Bridge. It's the tenth longest bridge in the world and cost 27.5 hundred million dollars. Because of the bridge, many more Danish people move to Malmö, but work in Copenhagen.

This picture shows the location of Western Harbor which is the modern harbor opposite Copenhagen. From the picture, we can see that Western Harbor has an excellence position and the construction of the city tunnel will enhance the attraction of Malmö, so it will be the largest and most important centre of development

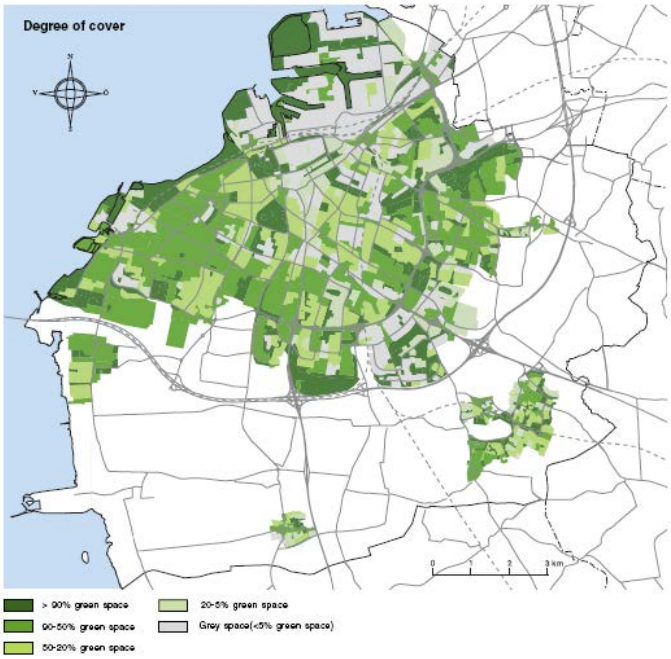


Figure 25, Source: *Green Plan for Malmö 2003*. City of Malmö, Sweden

The red part in figure 26 is the location of Western Harbor in Malmö. People call it 'the city of tomorrow", and it is the city district for every in Malmö. Thoroughfares, squares, streets, parks and open spaces are all welcoming and form a link with the roads in the city. Western Harbor has all the basic essentials for becoming an exciting residential area and a dynamic center for the development of economy and education.

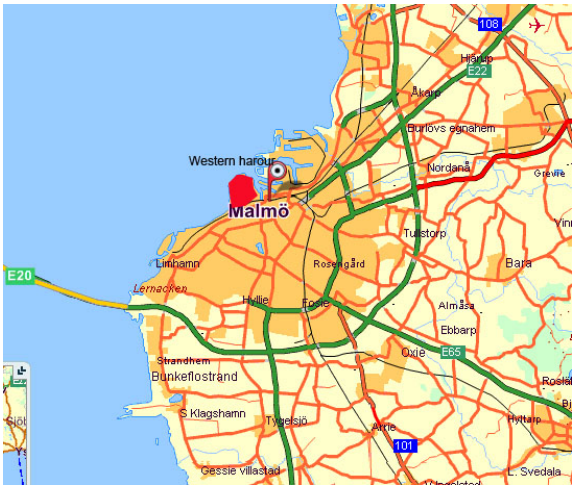


Figure 26

Source: map. Google.com, retrieved in 2009

The future vision for Western Harbor can be summarized as follows: Western Harbor is being transformed from a heavy-duty industrial area to a diversified conurbation. There will be space for attractive homes, businesses, schools, service facilities, parks and green oases. (Vision for Tomorrow in Vastra Hamnen, 2004)

4.2 Questionnaire results

I gave out surveys on Friday in the mid- afternoon, its working day. I sent it to twenty people in different places. There are the results I got.

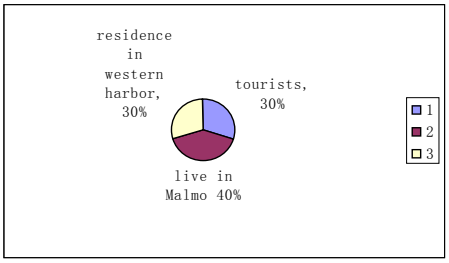
Of the 20persons, 15 persons were bellow 40 years old, and seven are male. The questionnaire is attached as an appendix in the end. The result is as follows.

3. You are

☺ Residence in Western Harbor

☺ Live in Malmö

☺ Tourists



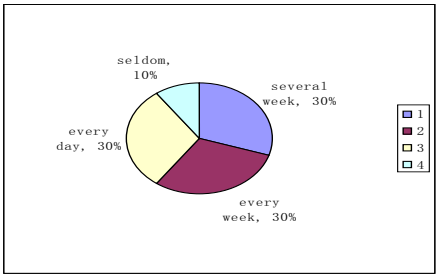
4. How often do you have a walk in Western Harbor?

☺ Every day

☺ Every week

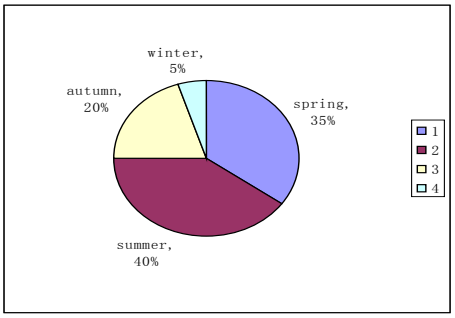
☺ Several weeks

☺ Seldom



5. Which season do you like best in Western Harbor?

☺ Spring
☺ Summer
☺ Autumn
☺ Winter



6. Do you like the sight here

☺ Yes ☹ commonly ☺ No

7. Do you satisfied with the environment here

☺ Yes ☺ commonly ☺ no

8. do you satisfied with the transport system here

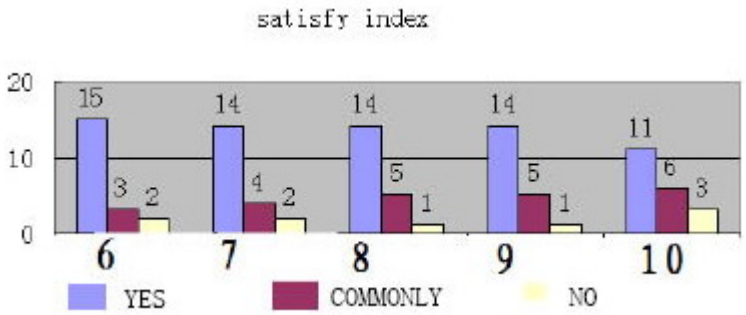
☺ Yes ☺ commonly ☺ no

9. do you think the green area is enough here

☺ Yes ☺ commonly ☺ no

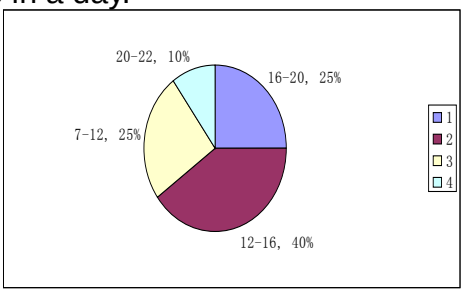
10. do you satisfied with the public equipment(such as chair) here

☺ Yes ☺ commonly ☺ no



11. When do you have a walk outside in a day.

☺ 7-12
☺ 12-16
☺ 16-20
☺ 20-22



12. which part do you like best in Western Harbor (can choose more than three)

☺ Turing Torso ☺ Bo01exhibition area ☺skateboard park(Stapelbaddsparken) ☺ Scania Park ☺ Dania Park ☺Ankar Park ☺ Kockum fritid ☺ Oresund bridge

13. which part you don't like in Western Harbor (can choose more than three)

☺ Turing Torso ☺ Bo01exhibition area ☺skateboard park(Stapelbaddsparken)
☺Scania Park ☺Dania Park ☺ Ankar Park ☺Kockum fritid

	Turning Torso	Bo01 area	Skateboard park	Scania Park	Dania Park	Ankar Park	Kockum fritid	Oresund
Like	20	25	8	18	13	14	6	16
unlike	2	1	4	3	2	4	7	1

From the results, we can see that people who are 20-40 years often go to Western Harbor, because they work there, and people like summer best and they quite satisfied with Western Harbor. The most attractive place is the landmark Turning Torso and the places along the water.

Why Western Harbor is so popular? Let's find the reasons out.

4.3 Division of space

Western Harbor was a former industrial waterfront area, close to the city centre, just five minutes walking from the central station. Planners created a sustainable, attractive waterside urban district where the old connection between the sea and the city is re- established.

Economic structure in Malmö changed from a traditional industrial background at the end of last century. The shipyard closed down and many areas of Western Harbor were left abandoned. So the project now starts for the future. They have made two major plans, one is to establish a University in the centre of Malmö, and another is to create an attractive city area in the Western Harbor near the University. The plan may change an old- fashioned, polluted and industrial town into an exciting, attractive and future- oriented city. (Wang Xin, 2006)

The Western Harbor has not only achieved the goals for sustainable city development and reclamation of industrial harbor sites, but the project has also been a huge success among city- dwellers looking for recreation. Thousands and thousands of people come to the area for lunch during week days and to stroll, swim or sit at a café by the sea during weekends.

When people plan a project, the history is very important. So history is the first step.

Figure 27

Source: http://www.Malmö.se, retrieved in 2009

Figure 27 illustrates the changes of Western Harbor.

The first picture shows what it's like in 1870, when it was just a port.

The second picture is taken during 1945 to 1965. After the Second World War, the area began its Kockums business. After this period, the Western Harbor began to expand.

In the period of 1965 to 1970, Kockums built the world's largest dock in order to enhance its efficiency. This was 405 meters longs and 75 meters wide, and it cost approximately 100 million SEK. Between 1970 to1985, the area further expanded includes the Expo area today.

In 2001, the area became like what it is today. The production includes wind power station, railway carriages and subcontract work. And the Saab factory turned into the offices, exhibitions, commerce and education.

After the housing exhibition moved to Western Harbor, the first step was taken in transforming this district by constructing housing along the sea. This was a very important plan. The permanent area consists of some 350 to 400 apartments. After the housing expo finished, more housing was built in the exhibition area. (Vision for Tomorrow in Vastra Hamnen, 2004)

Malmö University is also set in Western Harbor. This makes Western Harbor become a more attractive place.

Figure 28

Source: http://www.Malmö.se/english, retrieved in 2009

This picture shows the basic division of Western Harbor. Western Harbor is being transformed from a heavy-duty industrial area to a diversified urban area. There will be space for attractive homes, businesses, schools, service facilities, parks and green oases.

The development of Western Harbor can be divided into the following main areas: the exhibition area, the trade fair area former SAAB factory with its slipway, the crane area, former aircraft factory, the Celcius area and the Universitetsholmen university area.

4.3.1 Former Kockums Area

When I went to the Western Harbor from the central station, it was just a five minutes' walk, pass the bridge. The first area I cross is the former Kockums Area.

This area is not yet planned. Many of the old buildings here are still empty. There are many parking places along the main street. In the inner space, some project is going on.

Figure 29
Source: taken by author, 2009

The building in red is a project which is going on in Kockum Area. The street in the picture is the main street in Western Harbor, so it has two greenbelts to make the division. To make the traffic safer, in front of the street, there is a traffic island.

4.3.2 Crane

This area is a former dock area. The street planning has a rational east-west orientation, and the old or new buildings mix together well. Just because of these buildings, this area also has great versatility, including the following components: the neighborhood units, the district units, green and blue docks, public parks, harbor areas and avenues of trees. But in front of the building, there is just a boring land without green plants.

Among all the areas, Bo01exhibition area must be the shining star.

4.3.3 The Bo01 exhibition area

The Bo01 exhibition began in 2001; it was the first step in transforming the waterfront area into a residential housing district. The exhibition presents 350 apartments which were completed during that time. The keys word of the exhibition area is ecological sustainability: all the planers and government tried to make the district sustainable by demanding a high level of quality in architecture, environment and other materials. In Western Harbor, the most attractive place to me is the exhibition area, and many people come together there to enjoy the sun.

In the exhibition area, the most attractive spaces for people are the parks. Although Malmö already has a lot of parks, such as Pidammsparken, Slottsparken, Kungsparken and Ribersborgsparken, but the two new members are the major emphasis, they are Dania Park and Ankar Park. They are such a

good environment that all the people living in the area want to come here to walk. The plan of the exhibition area will be explained in detail next.

.

4.3.4 Bilen 4 and Bilen 5

This area covers about 50 hectares. The project is currently underway on planning programs for two parts of the area: the slipway area and a future city park. The office building is not going to be built specifically for any one line of business or tenant. All the building will serve as a living building for different tenants. These ideas meet the need for a building that can adapt itself to the varying business and requirement of its tenants.

The inner slipway will be preserved in its present state and will be used as a parkway. In the other part, a new school will be constructed in the city park. The park is next to the exhibition area and Turning Torso, and in the proposals, the school is planned in the western part of the park.

But for now this area is almost empty with just a big green park.

The plan for Bilen 5 is to construct hotels, offices and housing, but the plan is just a general plan, it needs a detail plan.

4.3.5 Universitesholmen and Former Saab Factory

Western Harbor will be a site for a new type of business enterprise. Heavy industries are being replaced by other businesses. The city of knowledge is blossoming, Universitetsholmen and the new university, Character buildings, sites and monuments will be preserved and will form a link between the past and the future.

Universitesholmen is the largest of the two development areas for the Malmö University. The plans include a library on the two upper floors. The total area of the building is about 35 hundred square kilometers and will consist of five or six floors.

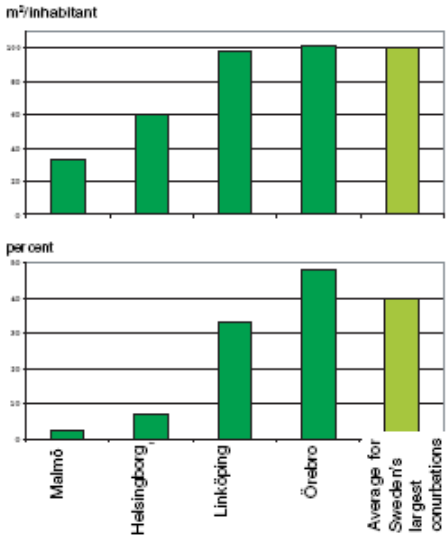
There is an interesting skateboarding area in former Saab factory. It attracts many young people, but the affiliated equipments are not well set.

4.4 Ecological sustainability

A united effort is being made to develop Western Harbor as the sustainable city. At the top of the list are environmental concerns and the conditions that are necessary for creating a healthy ecological development, which can play a major part in shaping the special profile of this city district.

Four- fifths of the world’s population will live in cities within a few decades. Urbanization generates economic development and well- being, but also leads

to problems with water and sewage, traffic, poor energy and over consumption of resources. Solving the cities' environmental problems is the key to a sustainable future. (Green Plan for Malmo, 2003)



Generally accessible green land in some Swedish flatland cities

1. Area generally accessible green land per inhabitant within the conurbation
2. Area generally accessible green space with 5 km of the urban boundaries

Figure 30

Source: the Green Plan for Malmö 2003

The data shows the disadvantages, which prompted the Green Plan came out.

Because Malmö plans to make the city green, they pay a lot of attention on the sustainability of Western Harbor. The theme of the housing exposition area is the City of Tomorrow in the Ecologically Sustainable Information and Welfare Society.

The aim is to be an internationally leading example of environmental adaptation of a densely built urban environment. It is also a driving force in Malmö's development towards environmental sustainability.

Renewable energy is also one of the ecological projects in Western Harbor. The main objective is to supply a new city area with 1,000 houses in Western Harbor with locally produced renewable energy, which means all the energy used here is produced locally. (Bo01- An Ecological City of Tomorrow in the City in the Western Harbor, 2009)

The plan of the project started in 1997 and will be in use in 2001. The demand for 100% renewable energy means that there must be a balance between production and consumption. Sun, wind and water will be the basic material for energy production, together with energy from rubbish and sewage in the area. The exposition area will just consume half of the amount of energy compared with other residential places. (Figure 31)

End-user area		Target Audience		Technical	
■	New buildings		Citizens	■	Energy efficiency
	Refurbishment of buildings		Households		Heating
	Transport and mobility		Property owners		Cooling
	Financial instruments		Schools and universities		Appliances
	Industry		Decision makers		Lighting
	Legal initiatives (municipal regulations, directives, etc)	■	Local and regional authorities		CHP
	Planning issues		Transport companies		District Heating
	Sustainable communities		Utilities	■	Solar energy
■	User behaviour		ESCOs		Biomass
	Education		Architects and engineers	■	Wind
	Other		Financial institutions		Geothermal
			Other		Hydro power
					Other

Figure 31 Source: the Green Plan for Malmö 2003

The energy production is balanced against the energy use and the estimated figures show that the area will be supplied with energy form 100% locally renewable sources. The amount of energy end use is greatly depending on the user's behavior.

Bicycles and pedestrians are given priority and make an attractive alternative to short journey by cars. There is bus service connecting the district to the rest of the region's public transport system. These buses run on alternative fuels. Residents here can also form a carpool. Alternative fuel vehicles have several advantages, they not only can get you to the places you want to go, but they also save the environment.(Case Study:100% Locally Renewable Energy in the Western Harbor of Malmo in Sweden,2009)

4.5 From industrial port to new residential area

Bo01 housing exhibition is Sweden's first international housing exposition. Its landscape design is accomplished together by Nordic landscape architects. These landscape architects have achieved a large number of excellent works and have become very famous in Northern Europe. The landscape design in B001 european housing exhibition focuses on the ecology, nature, beauty and human. They have specific features and styles. Three main parks in Bo01 and their designers are briefly introduced.

This is the picture showing the situation of the Bo01 exposition area.

Figure 32 Sources: Malmö Stad, retrieved in 2009

The word Bo01, in Swedish ‘bo’ means that residence and house. So the topic of the exposition area is city of tomorrow. The houses are based on sustainability and good landscaping, and they are high quality. The entire residential area is made up of many small housing areas.

Landscape architect Klas Tham is in charge of the overall planning. There is strong wind in this area, because its near the water, so planners pay attention to how to keep off the wind. All the architectures have their own energy system, and all the planning should based on the natural environment and be ecologically sustainable. Scaniaparken is being regenerated and a stronger link will be formed with Ribersborg beach.

There are six parks and a central square in the Bo01 exposition area. The aim is to attract people of different age groups and different cultures. This is the place they can meet together.

After the competition, Jeppe Aagaard Andersen is in charge of the Sundspromenaden, Thorbjorn Andersson, Pege Hillinge and FFNS are in charge of Dania Parken, Stig L. Andersson takes charge of Ankar Parken, and a landscape architect from Norway takes charge of the Scania Platsen. They are famous landscape architects in Northern Europe, so the Bo01 exposition

area can be seen as the epitome of the landscape of northern Europe; it can reflect the ideas and levels of the landscape in northern Europe.(Wang Xin, 2006)

4.5.1. Sundspromenaden

JA. Anderson wanted to make the entire beach near the residential area to a walking area, provide more space for people to get close to sea, enjoy the sunlight, and watch the beautiful seascape. But the government thought that this area should keep its natural situation, not a city block. So the result is southwest of the area is a walking block with a great deal of functional area and breaking establishments, and the northwestern area kept its natural situation, using Dania park.

Now, it's the connection of the Scania Platsen and the dock in south, as long as two hundred and twenty meters, big steps can also be used as seats, in the summer. Many people also lie or sit on the steps enjoying the sunlight; the steps in west are going to the sea, steps in the east face to residence. People can choose what direction they face to, watch the seascape or watch the scene in the café and bar.

Figure 33
Source: taken by author, 2009

Most of people choose to face to the sea, because if you face the other side, there will be a road cross the sight, they would not get a good sight, and are easy to be watched, people usually want to have a private space in the outer space.

All the designs are not decorated greatly, so people will not notice the designed materials; it emphasizes changes of the sea and sky, makes people feel close to nature. Although the planner makes Sundspromenaden very simple, to let people to forget his design, but elaborate materials can be seen in many details. Short lights are placed along the road to separate the road and

residences, leading people to the Scania Platsen and Dania Park. There are some glasses and crossties on the road, glasses are lit with different blue lights, and crossties can let people think about some memory of the old industrial area.

4.5.2 Dania Park

Figure 34
Source: taken by author, 2009

Dania Park has different function from Sundspronenaden, it has enough space to organize big activities.

The Park is in a simple and unsophisticated style. All this field is in the place which is easy to affect by sea breezes, wooden fence is daubed by tar, three big ramps cross wooden fence to the sea, it is also a good place to watch seascape in sunny day. On the side of the ramp is a flat roof round by short walls. The light on the flat roof is strangely inclined to the sea. This park is very like military fortifications in ancient times.

The middle of the park is a big green lawn, where people like to sunbath together, and it is also a place to have big concert or other activities.

In the north of Dania Park, there is a big inclining platform, a long ramp is a way there. A corner in the platform is excellent place to enjoy the sea breeze.

Just like many other plans in Sweden, it supplies different the needs of people, it has small private space also has big public space, hiding themselves in corner of the park, or discover themselves in sea breeze. Cross the long ramp, there is a big platform, on a corner of the platform; a small platform can

see the seascape. (Figure 35)

Figure 35
Source: taken by author, 2009

4.5.3 Ankar Park

Ankar Park is located in the resident area.

There is a long wriggling riverside in the park, which represents coast line in Sweden, and also enriches the sight in the park. Several kinds of plants in the line lawn in east, they are in different color and different heights, grow and bloom at in different time, so the plants supply a changing sight, also signal for the seasons. There are four areas related to four traditional biological communities, they are alder marshes, beech woods, oak woods and willow woods. They set four minimize community islands, they don't need people to take care of them, they grow by themselves in natural succession. So although this Park seems a bit wild, you can find many interests in it. The river is about one meter in depth; it gets water from sea, and then reflows back to sea. This circulation keeps the good water quality.

The sinuous riverside in Anker Park different kind of plants

Figure 36

Source: taken by author, 2009

4.5.4 Housing

Although people think the houses here are too expensive, we also can find many advantages. It has houses in different styles, such as apartments, villa, and houses for buying or renting. There are also different kinds of families living here.

Western Harbor is a strategic project in Malmö, in the last several years, it will be construct more attractive.

5 Conclusions

5.1 The comparison and existing problems of the two cases

Planning in China is not more advance than Europe, and the direction of research was different some decades ago. Chinese were similar with the water system and protection of water. But when the new thoughts about planning from Europe extended to china, many planners paid more attention to planning. So the quality of water reduced quickly, and water became dirty in many lakes. So China needs to find the advantages from Europe, also keep the existing advantages we already have. The situation of waterfront area is also different. In many parts of Europe, these waterfront areas are still industrial areas, but they are changing more and more. Most of the theoretical perspectives about planning in China are from foreign countries. Many modern parts of city use the modern style, because the traditional style is very expansive and cost money and materials. Many waterfront areas are just a copy of those in western countries with some simple changes, but ignore the traditional culture.

In Western Harbor, there are still many parts of the project on going. The overall environment is not so good. But fortunately, the Bo01 area is well separated, inside of this area insulate from outer space. The most attractive place in Western Harbor is along the water, so it does not affect a lot. It can present the preciseness of Swedish people; they spend a lot of time to do a project perfect. A project in Sweden takes 10 years, but in China it takes just 2 years. The difference is a Swedish plan can be used for 50 years, but only ten in China. This is the Swedish advantage, which Chinese can learn from.

Compared with Jinji Lake, the entertainments are not enough to attract people. In Western Harbor, the main entertainments are coffee bars, and in summer there is a sailboat festival. In Jinji Lake, it is full of entertainment, because a part of Jinji Lake is special for business and investment. There are restaurants, hotels, bars, shopping mall and an assembly hall. This is also because of the large size of projects in China. But the situation in Western Harbor will be better when all the projects are finished. A new event for Jinji Lake could be some kind of festivals, such as flower festival or boat competition to make it more famous.

In Western Harbor the shore is natural style, but in Jinji Lake, it is made of concrete. In ecological aspect, Chinese need to learn more from Sweden. But this also depends on the situation of country. For example, the thoughts of putting flowers along water are good, but may be after ten days, these flower will disappear in China. Big lawns are also not suitable in China.

The most obvious difference is the house style. In Western Harbor, the material of building a house is wood or brick and the house is not very high, just several floors. These kinds of houses will not be popular in China; people think it's not strong enough. When you walk on the floor, it will be noisy. In Jinji Lake, even in the whole China, most of the houses are built with concrete. The number of floors is related with the economy of different cities. If the city is advanced, such as Shanghai, the building will be taller. But it is always like this. People enjoy in different environment, some people want to live downtown for modern lives, others want to leave the city and enjoy the quiet environment.

5.2 Some design in the two cases

1. In Dania Park, there is a platform in the north, on the platform, everything is made of rock, and the shape is square. I think it is useless, in winter this place is cold because of the big wind from the sea, in summer, people prefer to stay on the grass and sunbathe. So I made a new design for this platform.

The material I use is wood. So in summer, people can sit or sleep on the floor and sunbathe. In winter, these trees and plants can reduce the strong wind. In the left of the drawing, there is an entrance. Go pass it, there is the small platform. The tall pillars are the sign of the big platform. The existing entrance is small, so it is easy to miss it. These pillars can attract people to come and have a look.

Figure 37
Source: drawn by author, 2009

2. The entrance of skateboard area is not obvious, and there is no supporting facility. When children skateboard, parents cannot find a place to relax or have a drink.

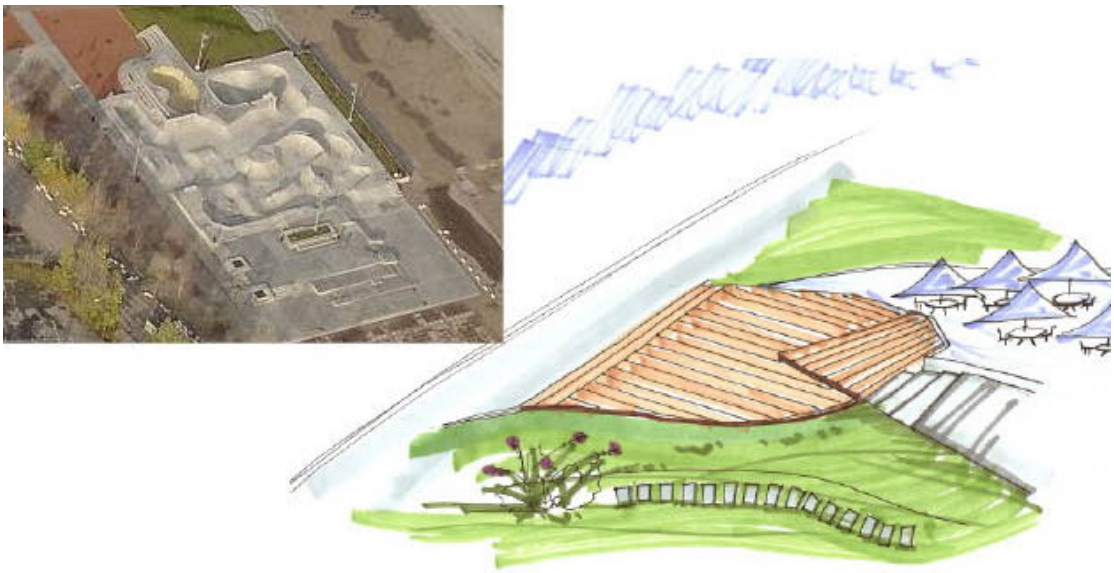


Figure 38

Source: drawn by author, 2009

In this design, the entrance is more obvious, and some chairs and desks are set there. I find that Swedish like wood, so I choose wood as the floor.

3. In Jinji Lake, although the steps are close to water, the design is not a natural style.

In the first picture, the place for people to play with water is too small; people can only play with water on the steps. This place is too small, because in China, people are not permitted to step on grass. So it needs to be widened.

Figure 39

Source: drawn by author, 2009

Widen the place that people can play. Change the material to wood. Make it more close to nature. All the Grand Promenade is along water, but because of its big size it is hard to be designed as a natural style. However, with many details, planners can use natural style to balance it.

4. Another place needing to be changed is the pavilion. This is a modern pavilion. It should be transformed to a traditional one. Because Suzhou is famous of its traditional culture, and the environment surrounding the pavilion is natural style, so why not use the traditional pavilion.

Figure 40
Source: drawn by author, 2009

From these two cases and theoretical parts, we can see a good waterfront area need to achieve these objectives:

1. Create a multi-use waterfront area that capitalizes on the harbor setting
2. Strengthen existing neighborhoods by fading industrial uses and redeveloping vacant and underutilized land
3. Create a linked system of open spaces
4. Improve the functions aesthetics and accessibility of existing area
5. Improve connections between waterfront area and city.

As a personal reflection, I would like to add that I really enjoyed writing and researching for this thesis, because I was able to learn about how Sweden builds a sustainable and functional waterfront area, I also found out the differences between China and Sweden. This thesis gave me a good opportunity to learn more about Sweden and planning.

Reference：

Breen, A., & Rigby, D. (1996). *The New Waterfront: A Worldwide Urban Success Story* (1st ed.). McGraw-Hill Professional.

Bo01- An Ecological City of Tomorrow in the City in the Western Harbor-Malmö, <www.eckostaden.com>

Cao Jieyong, (2005) “Analysis of the Design of city waterside residence”, *Chinese and overseas Architecture (COA)*, no.200504, pp. 75-77

Case Study: 100% locally renewable energy in the Western Harbor of Malmö in Sweden, Sweden 2009, European Commission, retrieved on 8 March 2009, < http://www.managenergy.net/products/R295.htm>

Green Plan for Malmö 2003. City of Malmö, Sweden

Gu Yi& Cheng Tian (2006), “Yoshinobu-ashihara& Kisho-kurokawa’s Urban Space Theory”, vol. 24, no.03, retrieved on 18 February 2009, ILIB2

Hoyle, B. A. M. H. (1988). *Revitalising the waterfront: International dimensions of dockland redevelopment*. Belhaven Press.

Hu Zuoan, (2003) *Residential Development at the Scenic Jinji Lake, Suzhou*, Cikn

Kevin Lynch, (1960) *the Image of the City*, China Architecture & Building Press, Beijing.

Princeton University online dictionary

Qiao Quansheng, *(*2008) *Chinese New City Development- Overall Planning in Jinji Lake*, Cikn

Seine River Basin, *United Nations Environment Program Department of Early Warning and Assessment,* retrieved on 5 June 2009

Suzhou City Planning Office, (2003) *Landscape Architecture Design for Suzhou Jinji Lake*

Suzhou Industrial Park Administrative Committee, (2003) *Landscape Planning in Jinji Lake- a new waterside community*

Tang Jian (2007), *Landscape Architecture of Waterfront,* Liaoning Technology Publish Company, Shenyang, P44

Travel. Westca.com, retrieved on March 22, 2009

Vision for Tomorrow in Vastra Hamnen 2004, Malmö stad in English, retrieved on19 March 2009

Wikipedia, Sweden, retrieved on October 11, 2009

Wang Xin, (2006). *The Landscape Design and Landscape Architects of the Bo01 European Housing Exhibition*, LA in Foreign Countries.

Wang Dongying (2007), *Learning from the Thames*, Chinadialogue, retrieved on19March2009

Appendix:

Hello! My name is Hou Diyun, from China. I'm a graduate student in ESDP (European spatial development planning) BTH. This questionnaire is related to my final thesis. Please answer following questions. Thank you!

1. How old are you

☺ 10-20 ☺ 20-40 ☺ 40-60 ☺ more than 60

2. You are

☺ Male ☺ female

3. you are

☺ Residence in Western Harbor ☺ live in Malmö ☺ tourists

4. how often do you have a walk in Western Harbor

☺ Every day ☺ every week ☺ several weeks ☺ seldom

5. which season do you like best in Western Harbor

☺ Spring ☺ summer ☺ autumn ☺ winter

6. do you like the sight here

☺ yes ☺ it can be improved ☺ no

7. do you satisfied with the environment here

☺ yes ☺ it can be improved ☺ no

8. do you satisfied with the transport system here

☺ yes ☺ it can be improved ☺ no

9. do you think the green area is enough here

☺ yes ☺ it can be improved ☺ no

10. do you satisfied with the public equipment(such as chair) here

☺ yes ☺ it can be improved ☺ no

11. which time of the day do you spend your time out

☺ 7-12 ☺ 12-16 ☺ 16-20 ☺ 20-22 ☺ _____

12. which part do you like best in Western Harbor (can choose more than three)

☺ Turing Torso ☺ Bo01exhibition area ☺ skateboard park(Stapelbaddsparken)

☺Scania Park ☺ Dania Park ☺ Ankar Park ☺Kockum fritid ☺Oresund bridge

13. which part you don't like in Western Harbor (can choose more than three)

☺Turing Torso ☺Bo01exhibition area ☺skateboard park(Stapelbaddsparken) ☺ Scania Park ☺Dania Park ☺ Ankar Park ☺ Kockum fritid ☺Oresund bridge

THANK YOU!