

ORIGINAL ARTICLE

## The Openness and Protection of Urban Wetland Park - A Case Study of Nanhu National Urban Wetland Park, Tangshan

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### Abstract

The urban wetland park is an indispensable part of an ecological city. It has aroused widespread attention and even quickly planning and construction around the country. But, in terms of the nature of the urban wetland park, there is a contradiction between the protection of urban wetland resources and the openness of the urban park for public. This article starts with the necessity for construction of urban wetland park, more over expound the existent problems between the protection and openness of the urban wetland park and to propose appropriate measures through the case study on Nanhu National Urban Wetland Park, Tangshan.

**Key words** : Urban park, Urban wetland park, Openness, Protection

### 1. Introduction

To be sure, urbanization has become a global trend. Development of the urbanization is not only reflected in the economic prosperity, but also improved the quality of our life in the optimization of industrial structure. So we need to protect the nature integrated in the urban system. By protecting the ecological environment through the urban landscape design, it is possible to make the trend of environmentally sustainable development to lead to a high quality of the urban life. Thus we cannot ignore the ecological value of wetland, and its unique landscape effect has been much valued gradually, which in turn make the construction of urban wetland park received widespread attention and support. This article focuses

on openness and conservation of urban wetland park, as a discussion on the utilization of existing urban wetland park in the country, which comprising mainly analyzing and summarizing the development of this particular case, Nanhu National Urban Wetland Park in Tangshan, provide some useful reference for the developed or the developing urban wetland park.

#### 1.1. Urban park and urban wetland park

Since 2001, regularly charge fees of parks in major cities throughout the country are going to be free step by step. Open park offers a variety of functions of urban green space such as leisure, relaxation and culture etc. The construction of urban park has always been playing as building organic public function to effectively integrate parts of the city.

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In the process of economic development and with the acceleration of urbanization process, urban park has five characteristics: public open space, accessibility and green. The contemporary urban park, opening to citizens, is an improvement of the urban function. It is also an important tactic to creating a healthy urban environment, fostering livable urban life and creating a harmonious environment.

Urban wetland park is a unique type of urban park, the wetland park landscape are more close to nature. Therefore, it is a good way to understand nature and acquire the knowledge of wetlands. Most of wetlands in the world include a cultural and nature landscape, and have natural and cultural properties.

Urban wetland park, introduced in this article, is located on the edge of the city or the center of the city, as influenced by the urban environment systems, economic development and socio-culture. It has the typical characteristics with wetland ecological function. It has ecological protection, science education, natural rustic charm and leisure tour of the park to be the main content.

Urban wetland park, mainly in the form of wetland landscape garden for the object, as a wetland complexes and parks will have a relatively complex social and ecological effects.

## 2. Research Methods

### 2.1. The protection and use of nature system: urban wetland park

A long story shows that wetland are the city's most important site condition in evolution of urban development, it is a universal law that relying on the river and lake to build a city. The development of the city is usually associated with human reconstruction and utilization of wetlands. The process of urbanization has led to malignant transformation of urban wetland environments, thus, urban wetland park emerges as a requirement of the times.

In the city, the urban wetland park has many same functional characteristics with the urban park, its main purpose is to protect per-urban wetland and promote ecological conservation of the urban environment. Currently, the wetland property of massive urban wetland parks in our country has reduced. The phenomenon that wetland park more and more like urban park frequently. There are two main reason: On one hand, the urban wetland park is too open to the citizens and society, and the phenomenon lead to cities and urbanization have some bad effect on the wetland environmental protection, as a result, the wetland park should assume responsibility for the protection of wetland. Conversely, the opening is not conducive to well protection of wetland. On the other hand, the construction of urban wetland park has used a lot of asphalt pavement as done on the urban road. Therefore, too much man-made materials and facilities around the wetland. The construction of urban wetland park almost like the general park in the city.

## 3. Results and Discussion

### 3.1. Nanhu National Urban Wetland Park

#### 3.1.1. The background of Nanhu National Urban Wetland Park

Nanhu National Urban Wetland Park located in the north of central area in Tangshan City for 1km. It covers an area of 6.3 square kilometers. There is a lot of areas used to be mine coal under the park that caused surface settlement. Up to 2006, it's the behavior of coal mining lead to 28 square kilometers of surface settlement under Nanhu National Urban Wetland Park.

In 30 years, under the influence of the collapse, settlements, industrial waste, municipal solid waste and any other factors, Nanhu became a typical town brown fields. It became a boundary that blocked the development of the south of the city (Fig. 1, 2). At the end of 20th century, Tangshan Municipal Government began to ecological environment improvement,

respectively for the two periods: from 1997 to 2005. It was called Construction of Nanhu park. The other is after 2005. Nanhu district afforded the main construction, such as newly-built roads, newly constructed building, commercial center and parks.



Fig.1. Before the renovation of the Nanhu park.



Fig.2. Before the renovation of the Nanhu park.

### 3.1.2. Nanhu National Urban Wetland Park in design

Nanhu National Urban Wetland Park used special management in terms of landscape, soils and other areas, for instance, recycling waste and garbage, harnessing polluted water, managing subsidence area landscape. These effective measures not only integrate natural, historical and humanistic into one, but also improve the ecological environment of the city effectively and the people's quality of life. After 10 years of governance, in 2004 won the "Dubai international

awards for improving the living environment", and in 2005 the Ministry of Construction Nanhu National Urban Wetland Park is one of the first published "National Urban Wetland Park".

It is different from the traditional landscape park. Ecological park places the protection of urban ecological security first, as a repair of urban ecosystem. Secondly, it provide a learning environment for the public and tourists. Nanhu National Urban Wetland Park as a typical eco-park, not only plays a role of mitigation the burden of the ecological environment and improvement for the city development, but also promotes the rationality of industrial structure in Tangshan City. It mainly reflected in the increasing proportion of the tertiary industry. Tangshan, gradual transition from a heavy industrial city to the Eco-City.

Nanhu National Urban Wetland Park has a remarkable achievement in improvement of the urban environment and the quality of life (Fig. 3, 4). However, because to the wetland landscape's value and ecosystem service understanding insufficiency, had many problems in the construction. It has lead to excessive exploitation and utilization of the wetland. For example, construction of the Spa Hotel, National Sport Base, Development of international golf club, luxury villas and a series of commercial activities inside the wetland park. We must take measures to protect the wetland landscape that in the park.



Fig.3. After the design of Nanhu park.



Fig.4. After the design of Nanhu park.

3.1.3. The openness and protection of Nanhu National Urban Wetland Park.

Openness of the Nanhu National Urban Wetland Park primarily in two aspects: One, wetland park is

hosting all the public. As the National Urban Wetland Park that free have a visit is a rare situation in the country, it has a high degree of openness and publicity any other wetland park without. The park extensive integration into the development of urban construction and establish a good relationship with the public.

The other, Wetland Park comprises city elements as its organization. It is clear to analysis from the plan of Nanhu National Urban Wetland Park that it has been surrounded by commercial, food palace, offices and luxury villas, even these have built in the center of the wetland park (Fig. 5). It is not difficult to see that the construction of Nanhu National Urban Wetland Park brings great benefits to these complex city elements,

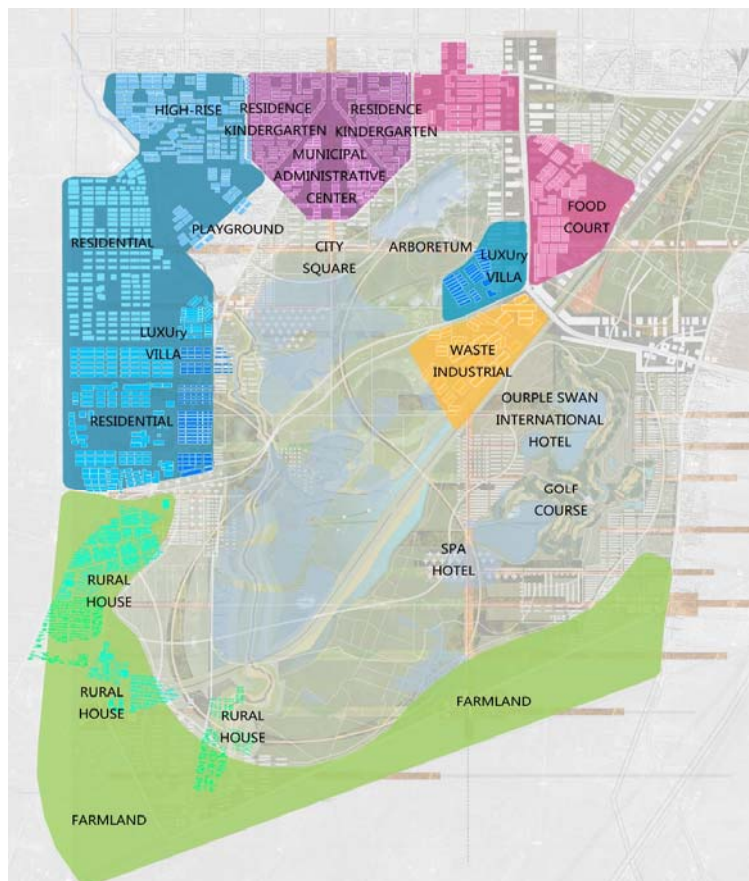


Fig.5. The plan around Nanhu park.

but at the same time it will also lead to wetland conservation issues.

Forest land, water, agricultural land, buildings, reed marshes and garbage constitute the Nanhu National Urban Wetland Park. The largest area is comprised of forest land, low natural secondary forest, and most of lands are the latter part as the artificial forest. In recent years, departments of management only plant trees in the wetland park without scientific research and plan.

#### 3.1.4. The measures taken by Nanhu National Urban Wetland Park

Because of excessively commercial consumption of the resource in Nanhu National Urban Wetland Park, the natural environment and the structure of the wetland has been seriously destroyed, it is particularly important for the protection of the wetland park,

##### 3.1.4.1. Enhance recovery of ecological

Main protection of the ecologic area in Nanhu National Urban Wetland Park, includes limiting visitors tours and reducing the interference of the wetland. Classifying different levels of water pollution, taking the clean-up measures and giving clean water back to the city. Management of the factory waste emissions has also been developed to control the pollution of rivers as forbidding people from dropping litter carelessly into the river.

Selective planting plants that suitable for the growth in Tangshan region. Use of shrub and grass plant the combination of the three-tier configuration mode. Planting a large number of Sophora and Rose that represent the cityscape of Tangshan. From the urban landscape set a unique regional culture and let people know the city well from an another angle.

Through a series of measures to cure the wetland, and play 1 protective effect on the ecologic area of Nanhu National Urban Wetland Park.

##### 3.1.4.2. Adjust the wetland boundary landscape of the park

Excessive opening of the Nanhu National Wetland eco-environment conservation brings a certain degree of difficulty. We can make use of the border that made by wetlands and other cities element and set a boundary with excessive landscape belt. It need to be regulated and planned in visual boundaries, actual boundaries, accessible boundaries and so on. With doing these method, wetland landscape can not only be separated from the urban environment, urban elements transition on the wetland environment consumption reduction, but also to make the function of wetland landscape and cityscape, to effective protection measures.

##### 3.1.4.3. Consolidation within the park complex

There are some abandoned factory buildings and tracks inside the Nanhu National Wetland Park. We can reference design of 798 Art Zone in Beijing and combined with the unique culture, such as the history of coal mining, steel industry development in Tangshan City and the earthquake memory. To retain the original industrial park, mainly on the construction of its reasonable control, development as a unique cultural landscape of Tangshan.

##### 3.1.4.4. Promotion of wetland science education

There are many well-developed national urban wetland parks that worth learning. In the case study of the Hong Kong Wetland Park, from the indoor exhibition halls to outdoor physical environment of wetland studies, visiting people can understand the features and properties duty of wetland park today, which could let the visitors themselves feel the importance to protect wetland ecological environment.

Nanhu National Urban Wetland Park should also show its efforts to developing the popularization of science and awareness-raising activities as an important aspect of park management. Let people knowing the wetland, learning the wetland, recognizing the importance of wetland conservation, from everyone

does protect and improve the wetland environment.

#### 4. Conclusion

Urban Wetland Park, conducive to improving the urban ecological environment and promote regional economic development. China has had 45 urban wetland park and most of them lie in ecological restoration stage, though people already have a wealth of experience in wetland park planning and design, and have an in-depth study of urban wetland park especially at regional local culture, stability of water resources and biological diversity.

Construction of urban ecological environment conducive to the preservation of the urban wetland park, reduce urban pollution and promote economic development in a large extent. It conducive to building harmonious relationship with city.

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