

Research of "Ecological Landscape" Design in Modern Logistics Park Planning

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Abstract—Ecological landscape planning and design is the design of the overall environment under the original overall planning pattern. It is the result of numerous planning and design theories and multidisciplinary integration. The ecological landscape planning and design of the logistics park enables to enhance the overall image. A good ecological planning of the logistics park will be conducive to the creation and promotion of the logistics park brand. This research, a case study of the landscape of the Huangshi Xingang Port, with field research method and comparative analysis method applied, exploring the ecological landscape design ideas and concepts of environmental planning outside the logistics park, and seeking new methods and models for ecological landscape planning and design of logistics parks, aims at improving the external environment planning and design of logistics parks, solving the problems arising in the planning and construction of logistics parks, and realizing the sustainable development of logistics park planning and construction.

Keywords—logistics parks; port; landscape planning; ecology; ecological remediation

I. INTRODUCTION

A logistics park is a geographical space with a certain scale and comprehensive transportation service functions, usually located in the edge of the city center or near the transportation hub of the economically developed area. Nowadays, the outstanding contribution of logistics in system, intensivism, environmental pollution reduction, human economic and social coordination and sustainable development has gradually been confirmed by the construction practice in many countries. In recent years, the expectations of the society for urban planning have gradually surpassed the level of material carriers, and more attention has been paid to the ecological research of planning and design. Meanwhile, more attention has been drawn to the ecological construction of logistics parks. Ecological landscape planning has become an important part of the construction of logistics parks. Good traffic planning, functional division, visual planning and plant configuration will be helpful with enhancing the image of the logistics park to a certain extent and changing the public understanding of traditional logistics parks [1].

II. PROJECT PLANNING OVERVIEW

Huangshi Xingang Port Co., Ltd. was established on December 11, 2014 as a joint venture between Shenzhen

Yantian Port Co., Ltd. and Huangshi Transportation Investment Co., Ltd. Huangshi Xingang Port is Huangshi's overall development, construction and operation of Huangshi Qipanzhou Port Area with supporting industries under the principle of "one city, one port and one principle part". Qipanzhou Port, an excellent deep-water port area rarely found in the middle reaches of the Yangtze River, is a comprehensive port area integrating bulk loading, unloading, warehousing and container transportation. The engineering section is a Class I channel with Class I navigational aids planning and Class I waterway maintenance. The 3,000-ton inland river vessel can be fully loaded and navigable all year round. The waterway for sea-going vessel is open seasonally according to the natural water depth. The waterway maintenance depth is generally between 6.0m and 7.5m, and the waterway width is 200m, which allow 5,000-ton sea-going vessels to be fully loaded. According to the preliminary plan, the Qipanzhou Port occupies a coastline of 7721m and takes up a total land area of 6.3km². The construction of the port area is planned to be implemented in three phases. The hydraulic part of the first phase of the project and the storage yard have been completed up to the present.

The rear of the Qipanzhou Port has been facilitated with a feeder railway connected to the Huangshishan South Railway, which is connected to the national railway network via the Wuhan-Jiujiang Railway. The highway for the port is Xingang Avenue and Huangfu Riverside Highway. The planned Qipanzhou Bridge will connect the Huangxian Expressway (connected to the Daguang Expressway) outside the Wuhan City Circle to the east and cross the Yangtze River and connect with the Shanghai-Chengdu Expressway. At that time, an integrated transportation system of highway, railway and waterway will be formed, which makes the port transportation more convenient.

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Fig.1. Railway Line Layout of Qipanzhou Area of Huangshi Port(The picture is taken from the official website of the company)



Fig.2. Highway Layout of Qipanzhou Area of Huangshi Port(The picture is taken from the official website of the company)



Fig.3. Rendering of Phase 1 and Phase 2 of Qipanzhou Area of Huangshi Port(The picture is taken from the official website of the company)

After a field investigation of the Port, it was found that the construction of the first phase and the second phase of the project basically covers only the working environment of the port terminal. The biggest advantage is that the rear development planning land is adequately reserved, which lays a very good foundation for the potential development of the port. However, limited content has been found to be involved in ecological landscape planning.

III. PROBLEMS IN THE PLANNING OF “ECOLOGICAL LANDSCAPE” IN LOGISTICS PARKS

From the perspective of sustainable development, the landscape, unavoidably be connected with artificial landscapes and natural landscapes, has its own unique natural conditions and cultural characteristics. The above case design embodies professional and functional principles everywhere, but lacks ecological principles such as culture and environmental protection, without any of which, environmental landscape design is imperfect. In a general view, the logistics port landscape planning and design has the following problems:

A. The Absence of the Landscape Concept

People who have been to logistics parks and ports share a common feeling that they do not feel the landscape design. The overall feeling is industrialized and there is no feeling of beautiful environment. This is because people do not realize the importance of the landscape, or the main principle of satisfying the function, which leads to a poor environment, depreciation of surrounding real estate, and fewer and fewer people. Nowadays, developed countries in Europe and the United States have already transformed the port environment through the secondary development of the old port, thus increasing the value of the port and its surrounding real estate and bringing economic returns to the city. There is also a number of well-known port cities in foreign countries. Apart from being an important center and hub in the global logistics chain, they are almost all national or regional financial centers, logistics centers and famous tourist attractions cities. The accumulation effect of the port and the diversity function of the city have become the core competitiveness of the port city.

B. Subject Vacancy during Landscape Planning and Construction

The coastline regulations are still in the blank in China. On the one hand, the port construction is costly with a long period, allowing the terminal builders to push the environmental transformation task to the government department. Port builders prefer to invest in places where economic benefits are available. Landscape design is dispensable for them, so they are reluctant to invest in the landscape. In the process of globalization, factors, resources and division of labor change rapidly at different levels, and are increasingly concentrated in areas with individuality and characteristics; At the same time, a city needs to create, maintain and strengthen its own identity and characteristics. This kind of effort will eventually be implemented in a specific part of the city [2]. The port area is a place with great identity and characteristics. The core content of the port development trend is the integration of ports and functions and the diversification of functions. The construction of modern ports no longer only focuses on the port area, but also gradually pays attention to the overall style and planning.

C. Exploitation over Environment Protection

Coastline, one of the most parts in a city, of which the development and construction are related to shipping, coastline management, the reserve and the supply of water resources, the protection of animals and plants, energy, the safety of the city, etc., the landscape planning of the port area and the logistics park is not only the need to shape the port, the beautiful

environment of the city and the unique planning [3], but also the need to achieve sustainable development of logistics and enhance the competitiveness of the city. The landscape planning and construction of China's logistics distribution centers has barely begun. For example, landscape planning in the port area and logistics base is missing; the construction and management subjects are vacant, and relevant laws and regulations are not perfect. More importantly, people are not aware of the importance and urgency of landscape planning for ports and logistics parks. How to coordinate the contradiction between economic development and environmental protection has practical significance in our current port development.

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IV. SUGGESTIONS ON THE IMPROVEMENT OF THE "ECOLOGICAL LANDSCAPING" OF THE PROJECT

The ecological landscape design mainly studies the main functional characteristics of the environmental landscape outside the logistics park, which not only reflects the excellent environmental geography, but also better displays the cultural characteristics of the enterprise or logistics area; The main objectives to be achieved in the environmental planning and design of the logistics park include [4]. clear functional division, humane care, efficient traffic organization, and potential for future development; The planning elements of the logistics environment must be built around the ecological design goals. Planners or builders should try multi-target and composite landscape planning methods in modern port areas or logistics park. Since the overall landscape plan is inseparable from the overall plan of the city, the concept of integrated planning and design maybe implemented [5]. It is also recommended to incorporate logistics landscape planning into the overall urban planning and make it the basis for the preparation of special planning for logistics parks.



Fig.4. The Current Situation of Huangshi New Port (The picture is taken from the official website of Shenzhen Yantian Port Co., Ltd.)

A. Unified Planning of the Element Design

The planning and design of the external environment of the logistics park maybe based on the overall layout, from the design of the planning division, traffic organization design, entrances and exits, borders, sketches, greening, parking lots to other planning elements, with the overall guiding ideology, elements and characteristics of the environmental planning outside the logistics park unified.

B. Establish a Green Ecological Planning Sense

As the global environment deteriorates and resources run short, building a sustainable eco-city has become a global consensus. Study the current advanced green ecological planning concepts and practices, analyze the methods and methods of modern planning and design, and combine the current situation of logistics parks to design a green ecological plan that is in line with China's national conditions and suitable for the development of logistics parks [6].

C. Highlight the Modern Logistics Enterprise Culture

The research is generally undertaken in terms of logistics development and enterprise development. it is not only the survey of enterprise's demand, but also that of the industry and the government planning. The comparative analysis of the two perspectives points out the problems in the external environment of the logistics industry, researches and combines the advanced enterprise culture of the industry both at home and abroad, and provides a sustainable planning and design model under the guidance of the place spirit.

D. Embody Human-care during the Planning and Design

Apart from satisfying the functional needs, the overall planning and design maybe bringing spiritual satisfactions to the public and embody the wish for a higher living quality and human-care [7]. The planning and design of the logistics park should be a combination of logistics culture and entrepreneurial spirit, and serve as a cultural recognition and appeal to the personnel in the park in order to improve the overall recognition of the logistics industry; thus, the logistics practitioners will gradually stabilize in a good industry environment, so as to better coordinate the modernization of logistics [8].

V. THE PRINCIPLES OF THE LANDSCAPE PLANNING AND DESIGN OF THE PROJECT

A. Fluency

The fluency of traffic is an important principle in the construction of logistics parks, and indirectly affects the safety and circulation speed of logistics products; By designing independent supply and procurement streamlines, traffic capacity will be improved and space organization will be more efficient.

B. Identifiability

Complete and clear identification system helps to improve logistics efficiency. The design points of landscape elements such as land boundaries, warehouses, yards, and pipelines should be held tightly [9]. The humanized logo and color pattern enhance the diversity of the plan, not only giving people a visual impact, but also optimizing the campus environment.

C. Ecology

With consideration of the climate features of Yangxin County, Huangshi City, the dust and noise can be controlled by planting local plants and introducing the vertical landscape. The design should follow the principle of view borrowing first and creating scenery the second, and the nature first and artificial construction the second; Adopt ecological rain and flood management to the design and treatment of the rainwater, sewage, garbage, etc., Recycle and reuse it while reducing the impact on the surrounding environment to achieve low carbon environmental protection in the park.

D. Easy maintenance of the Plant

Bulk mixed forest may take the principle with upper forest of different ages distributed so as to realize natural growth. Suitable drought-tolerant shrubs that are adaptive to Yangxin may be chosen to be planted to realize maintenance free or the lowest maintenance cost.

VI. CONCLUSION

Good ecological landscape planning and design not only enhances the regional image, but also does to the corporate image. A logistics park with beautiful environment, coordinated planning, and efficient modernization helps to create a good cultural image for logistics enterprises and add value to enterprise logistics products [10]. Based on the original production function, this study elaborates the landscape design principles of the port area from the aspects of traffic route, identification design and ecology, i.e. nature first, artificial the second; necessary ecological remediation; traffic

efficiency with consideration of the features of motorway, walkway, and outlying traffic [11]. based on the establishment of a people-oriented "ecological landscape" system, modern logistics parks and ports should jump out of the design pattern of conventional logistics parks and ports. Should proper human elements be introduced, the dull, monotonous and human-care-lacking image will be changed; the impact of the transportation process on the environment will be reduced; the content and level of the landscape will be greatly enriched; and a more pleasant logistics park environment will be created. It is important thereby to improve the quality of urban ecological environment and ultimately achieving coordinated development of economy, society and environment.

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