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The Analysis of the Plan and Design System of Humanistic Ecological Landscape - Taking the Tianjin Eco-City Wetland Landscape Planning as an Example

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Abstract: ***In recent years, wetland landscape design is increasingly becoming a new research focus. In this paper, on the basis of the framework with the principles of cultural heritage, humanistic care and in accordance with aesthetic, it takes the cultural vision as an indispensable design factor. Also, the function oriented should be the main consideration in the wetland design, the original cultural symbol should be materialized in the landscape, and the humanistic design and eco-technology should be on a reasonable balance. Therefore, the designers must permeate the cultural factors into the prerequisite process of the design in order to reflect the spirit of the humanistic landscape wetland and promote the wetland conservation and restoration***

Keywords: Humanistic Wetland, Design System, Cultural Field, Landscape Symbol

1. The Origin of Humanistic Wetland Landscape

With the development of wetland development in China, the humanistic wetland landscape is becoming a new research hotspot in the fields of wetland environment, ecology and design. Wetland is a kind of area ecosystem derived from the matrix organic combination where plants, animals and micro organism are under water saturation permanently or intermittently. According to its nature, the wetland can be divided into the types of urban wetland, artificial wetland, rain wetland, estuary wetland, lake wetland, ford delta wetlands and wetland landscape conservation, etc.

1.1 Internal Causes and Connections of Humanistic Wetland Landscape Development

So-called wetland landscape design is the result of the inducement and consideration of the reform of the evaluation system of the wetland environment. The design is the combination of morphologic design factors, and the factors relocate the characteristics of the wetland landscape with requirements of aesthetics and utility under the manual intervention. It needs to be stressed that not all the wetland has the potential of “landscape” transformation. In most cases, the wetlands are the research area in the fields of environment engineering and ecological sustainability. In the field of design, the research of wetland landscape design and ethos characteristic have the extensive attention because of the humanistic value.[1]

1.2 The Theoretical Basis of Literati Wetland Landscape

Humanistic wetland landscape is the key subsystem of the design, the theoretical basis of the design evaluation, the reflection of the wetland environment’s cultural characteristics, art aesthetics, personalized space features, as well as the entertainment value scale. [2] The wetland landscape, which is designed on the basis of the landscape humanistic system, has great differences from the traditional landscape. Besides the sightseeing and leisure value, the wetland landscape design should provide high quality guarantee for the wetland cultural refinement, ecological education, and the habitat of wild animals and plants, as well as the comprehensive function of flood detention and sewage treatment. Therefore, the design concept of wetland landscape should also be different. That is, on the basis of aesthetics design principles, the wetland landscape design should trace the cultural value in different areas of the design principle, and mitigate the threats and pressure of the single view and the scarce tourism value because of the ecological conservation in the existing wetlands, in order to create greater economic, ecological and educational values. This article introduces humanistic idea as a design basis for wetland landscape design in order to explore a kind of design framework suitable for the regional characteristics. There is reason to believe that taking the design idea as guidance throughout the wetland area as the perquisite orientation could bring some wetland more construction value and more sustainable effective use.

2. Design Guidelines for Humanistic Wetland Landscape

Wetland is a special field of landscape diversity, where countless species of plants and animals live. The complex environment attracts many tourists, potential uncertain consumer groups and research amateur to take the activities of recreation, leisure, entertainment, and scientific research. [3] Also, the wetland irreplaceable function in the flood control, runoff reduction, flood storage

drought-resisting, degradation, etc. In the system of humanistic wetland landscape, it also needs to pay attention to the stage type thinking of the guidance planning framework.

2.1 Focus on System Optimization Principles

The reasonable wetland design system can optimize the living space of wetland creatures, the wetland biodiversity, and prevent the invasion of alien species, as well as to create tourists' accessibility to the functional space. Planning the continuity of wetland and surrounding natural plot and optimizing the wetland ecological corridor could coordinate the stability of wetland resources to ensure the sustainable development of wetland park.

2.2 Emphasize the Principle of Humanistic Import

Among the long historical elements of wetland formation, the intervention of humanistic concept is the most powerful theatrical basis for design. Under the background of mining specific conditions of time and space, the wetland layout and regionalization fuse the design factors and reflect the cultural characteristics of the wetland environment, the art aesthetics spirit and the personalized place spirit. [4]

2.3 Balance the Principle of Manual Intervention.

The redundant humanistic design should be avoided because it could lead to the excessive segmentation of wetland environmental area, reduce the migratory bird success rate, reduce the tourist participation, and cause environmental degradation. Therefore, widespread coverage of the artificial facilities should be avoided in order to prevent the high plot ration and flow rate. Also, the excessive interference of urban development to the wetland landscape should be avoided.

3. Reconstruction of Humanistic Wetland Landscape

Humanistic natural wetland research has important significance for design concept, status quo analysis, landscape planning, as well as environmental protection, human life and production. Also, it determines the cultural connotation of the wetland landscape design.

3.1 Transcendental Nature of Cultural Sites

The humanity landscape of wetland space is the cultural information related to wetland landscape. [5] Therefore, the perquisite concept should dig the humanities spirit and give the wetland special meaning of cultural geography. The shape of wetland landscape should embody the special wetland site spirit, namely, to establish wetland cultural landscape. The establishment means to analyze the history of wetland, including all kinds of ancient book literatures and local Chronicles, in order to understand the geographical structure change and the related tales, etc.

3.2 The Inheritance of Design Conception

As the necessary stage of design prophase, the culture conception includes applying the fishing and hunting culture of wetland early human in the fields of traffic road traffic culture and waterway shipping culture, the farming cultivation culture, the tourist country culture, and the education of scientific culture and so on. Combined with the of residence's dependence to the wetland and their influence to the environment, a comprehensive and multi-angle of wetland is designed with the emphasis on using the original water, animals, plants, climate factors to strengthen wetland's natural landscape.

3.3 Comprehensive Team Cooperation

Framing the humanistic wetland landscape must make a clear guideline for the design and planning. Therefore, the multidisciplinary classification technique should be applied to combine the economic strategy, environmental analysis, traffic design and regional planning. At the same time, the sequence and intervention weight of interdisciplinary should also be paid attention to make the team play a huge benefit.

3.4 Derivatives of Plant and Animal Habitats

Key protected areas should be set up to protect the important wetland with the complete ecosystem and biodiversity. Restricted area should be set up for migrating birds and breeding birds. Also, environmental volunteers can also be organized to participate in the bird protection activities. As the plant protection system is weak in soft revetment return waters, it should to strengthen the team group planting area, increase animal hidden planting area and the green transition zone between the wetland and the outer space, in order to build green humanistic habitat culture.

3.5 Sustainability of Upper Ecological Considerations

Constructing the humanistic wetland not only expresses the study and respect of the upper planning, but also achieves the continuity and utilization of the ecology in the concrete performance of design. Besides, it metaphors the approval and support for the current concept of ecological protection and sustainable development. When constructing a wetland science and recreation line with the theme of "pregnant", "development", "civilization", we need to firstly elaborate the wetland's formation, characteristics and functions, open the wetland to the public since the early stage of the design, and introduce the wetland landscape in the form of both pictures and words, in order to let the public know more about wetland.

3.6 Participation and Interactivity of the Public

The public participation is a kind of supplement for the cultural elements of the wetland system's natural landscape. In their tourism, the public could enjoy both the wetland's unique value – the contact with wildlife, and the strong

order of artificial landscape. Then, the landscape becomes an education place to enhance public awareness of nursing wetlands. It also means that the wetland landscape design cannot be separated from the original design and the design should show a coherent culture temperament.

4. Discussion and Application of Humanistic Wetland Landscape

4.1 Landscape Status and Cultural Construction of Tianjin Eco-city

Adjacent to the Bohai bay, Sino-Singapore Tianjin Eco-city project is located in Tianjin's Binhai New Area, which is between the Tanggu and Hangu Districts. The project is about 15 kilometers from the core of Binhai New Area, 45 km from Tianjin's center, 150 kilometers from Beijing, and 50 kilometers from Tangshan. It will become a technology self-innovation platform focus on ecological and environmental protection, energy conservation and emission reduction, and green building. Besides, it will become a window for participating in the international ecological environment development, and a demonstration new town for ecological live. To sum up, the initial vision for the project is to build an integrated cultural framework of historical, ecological, landscape accessibility and cultural experience.

4.2 Coupling of the Humanistic Factors and the Vision of Tianjin Eco-city

The humanistic resources of Tianjin Eco-city include the natural history and humanistic history of Hangu. The vision is positioned as "the cultural corridor through time and space" with the reasonable arrangement of functions in each subject area with the feature connected. Also, the new ideas re explored in traditional culture. For example, the antique fishing village style and layout highlight the fishermen's life and their salt making process; the city street is in the Chinese architecture to strengthen the tourists' aftertaste and imagination, as well as their consumption; the shell element has become the design concept to creating a relaxed urban leisure atmosphere and ecological green belt in the urban wetland park; the habitats of native landscape is respected by protecting the original appearance of the base to utmost, appropriate using of ecological technology and means, protecting the ecological environment, limiting people's activities through the design, and protecting the animal's living space.

4.3 Challenges and Opportunities of Tianjin Eco-city's Humanistic System

4.3.1 Landscape's Disadvantage

With the dry climate, Tianjin eco-city's vaporization is three times as much as the rainfall evaporation. Also, in Tianjin eco-city, the water resources is in short and the water pollution is serious. So, large cost of water treatment is needed to relieve the serious soil salinization which could restrics plant growth and cause high planting cost, single and fragile ecological characteristics, and low biodiversity. Also, the soil salinization makes a large number of upstream pollution in the low end of the valley, which makes it difficult to control near Bohai Sea, and make it vulnerable to disaster and the influence of storm surge flooding in rapid land development mode of the ecological environment pressure, etc.

4.3.2 Landscape's Opportunities

It is possible to establish a long-term ecological sustainable landscape strategy and provide a comprehensive landscape planning approach to comprehensively consider water resources management, flood control, sustainable development and ecology. A collaborative approach is provided to implement the regional strategies, to coordinate different project (for more efficient use of financial resources), and to build beautiful multi-functional open space system with clear functions, etc.

4.4 Upper Humanistic Landscape Planning Strategy and Framework of Tianjin Eco-city

The main purpose of the landscape design is to build a multi-type ecological habitat, a diversified water management system combined with landscape and rich water experience. Also, the purpose includes forming a rich and rhythmic waterfront experience by combining the residents' leisure and entertainment. On the one hand, the landscape design should consider taking into account the corresponding measures of soil vegetation restoration. On the other hand, the economical ecological, energy-saving and environmental-protection purpose should be realized through the way of fully using and researching advanced technology, combing the developing and education of wind power, solar energy, and heat extraction. Multi - type ecological habitat diversity of water resources management system diversity rich water experience.

4.5 Tianjin Eco-city's Diversified Humanistic System

The landscape planning of Tianjin Eco-city is a complex synthesis of artificial landscape and natural ecosystem. Establishing the humanistic system is conducive to implement the ecological restoration strategy, find geographical plaque basis for regulating the large area of salt fresh water beaches and tides, as well as provide tourists with all sorts of knowledge carrier.

4.6 The Evolution of Cultural Symbol and Design Elements of Tianjin Eco-city

The current cultural elements in the comprehensive Eco-city has been discarded the dross and selected the essential by redesigning the old, high redundant and even scattered elements into the new vocabulary applied in the wetland landscape. For example, planning saline region to folk culture stage, planning the old battery to a patriotism education base, combining the local vineyard with the new designed castle hotel, processing scene of oyster shell into a landscape wall with cultural characteristics, changing the print which represents the Hangu art to a waterfront

landscape shop, reforming the vertical windmill to an art frame before the wetland museum, materializing the local woven seats to grid greasewood with unique features.

4.7 District Design of Tianjin Eco-city Humanistic Framework

Thus, a culture base with multivariate system, including geographical culture, historical culture, natural culture, scientific culture, environmental culture, as well as the application of sustainable tourism culture, is established. Then, by reasonably arranging these design elements in the eco-city function partition according to the different types of wetland, the wetlands can be concluded into the following several big landscape domains:

Ji Canal upper landscape, ecological theme park section, landscape design city section, landscape design section, Ji Canaldownstream culture and sports park section, etc.

Therefore, the macroscopic framework has been formed, and more detailed landscape design will be carried out after reasonable demonstration.

5. Conclusion

In the recent years, as a special type of landscape design, wetland has got more and more attention in the planning and the environment field. When researching the humanistic wetland system and making the landscape design, the cultural vision is always kept as an integral part of design factors. It should not only be a framework with cultural heritage, humanistic care, aesthetic principles and been repeat argued, but also follow the theories, the design principles and the various functional indexes of ecological engineering. The responsibility of landscape architects is to make the culture and habitat coexist, attach equal importance to planning and technology, find a favorable fit point for the natural wetland environment and human living environment, and then make the wetland design studies with wealthier region value.

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