

Study on the Model of Urban Landscape Water Ecological Construction

Zhijin Zhao

Yunnan College of Business Management, Yunnan, Kunming, 650000, China

Keywords: Urban Landscape, Water Ecological Construction, Develop Model

Abstract: On the basis of summarizing the historical progress of urban construction development and the progress of urban water ecosystem research and construction, it is pointed out that there is no comprehensive research on urban water ecosystems at home and abroad, and no systematic research system has been formed. There is no coordinated concept of urban-human-water body. In view of this situation, the urban water ecosystem construction model of water safety, water environment, water landscape, water culture and water economy is proposed. This model can effectively solve urban water-related planning and construction. The singularity problem is conducive to improving the management system of urban water ecosystems and providing theoretical guidance and technical support for urban ecological construction.

1. Introduction

With the rapid development of social economy and the increasing urbanization rate, the number of producers and consumers in urban ecosystems has increased significantly. Due to the serious shortage of decomposers, the artificial ecosystem of cities has become increasingly vulnerable. As an important part of urban ecosystems. The water ecosystem is also facing tremendous pressure: the urban river ecosystem space is shrinking, the system's nutritional structure is seriously dysfunctional, the water body eutrophication is increasing, and the water environment quality is deteriorating. The urban water ecosystem function has been declining and has become a city. One of the constraints of sustainable development. Therefore, the study of urban river ecosystem construction model has important theoretical value and application significance. Based on the analysis of urban river ecosystem characteristics and existing problems, this paper uses water security, water environment, the five-in-one river ecosystem construction model of water landscape, water culture and water economy, taking Lianyungang City as an example, studied the urban river ecosystem construction plan. Design is to consciously shape matter, energy and process to meet Predicted need or desire, design is through material energy and land use to connect nature and culture. Sim Van derRyn and Stuart Cow n (1996) define eco-design as: any design that is coordinated with the ecological process to minimize the effects of environmental damage. Called eco-design, this coordination means respecting species diversity, reducing deprivation of resources, maintaining nutrients and water cycles, and maintaining the quality of plant habitats and animal habitats to help improve living environment and ecosystem health Yu Kongjian and others believe that ecological design is not unique to a profession or discipline, it is a consideration of the interaction and association with nature. Ecological design provides a unified framework for people to help people re Examine the design of landscapes, cities, buildings and people's daily life styles and behaviors. The ecological design of cooperation with nature must respect and maintain its diversity. Multi-type composite habitats are the basic conditions of ecological design, in urban landscape water ecology In the design, excavate and exploit the ecological potential of the original habitat, and use the heterogeneity of the natural environment dominated by soil and water to construct diverse habitats. Or create a new type of animal and plant environment in order to protect the urban landscape water ecology and sustainability.

2. Analysis of urban river ecosystem characteristics and existing problems

Urban river ecosystems have two characteristics: natural attributes and social attributes. In terms

of nutritional structure, producers, consumers and decomposers of natural attributes are mainly high and low animals, plants and microorganisms in water, undisturbed. In the environment, normal nutrient cycling and material balance can be achieved. However, due to human participation, urban river ecosystems increase the producers of social attributes, including the discharge of urban sewage, storm water and solid waste. Nutrients, increased consumers mainly include urban residents' domestic water, industrial production water and urban municipal comprehensive water. The large amount of nutrients entering the river ecosystem cannot be completely decomposed by the natural decomposers in the water, so it is necessary for humans to strengthen waste water. And the management of solid waste to alleviate the pressure on social river ecosystems caused by social producers.

Urban river ecosystems are greatly affected by humans. When the decomposers of their natural attributes cannot afford all the energy in the system, the system will have a lot of problems, which will threaten the safety and sustainable development of urban ecosystems. a. Urban flood control and drainage safety Without protection, river ecosystems are prone to collapse. In recent years, the expansion of urban scale and the increase of urbanization rate have caused great changes in rainfall intensity and convergence process. At the same time, urban drainage facilities are imperfect, resulting in flooding of inland water systems. The rapid occurrence of urban flooding and the collapse of river ecosystems in severe cases. b. The urban water supply guarantee rate is low, and the producers in the river ecosystem are insufficient. The water consumption of various industries in the city is increasing, resource type and water quality. Type and engineering water shortages are becoming more and more serious, urban water supply security is not guaranteed, and the lack of quality and quantity of producers in river ecosystems restricts the development of the entire city. c. The water environment quality is seriously degraded, and ecosystem function is degraded. The water quality of more than 80% of urban rivers in China is lower than the water quality standard, and the river water body is black and smelly. It is very common. Many cities produce waste and domestic waste dumping rivers are more common, seriously affecting water quality, causing degradation of water ecosystem function. d. Wading culture is not reflected, wading economic development is weak. Most urban ecology in China In the system construction, water culture construction and water economic development are not paid attention to, the historical and cultural heritage of the city is not reflected, and the urban cultural taste is not high.

3. Discussion on the construction mode of urban water ecosystem

The water safety system of urban water ecosystem mainly includes three aspects: urban flood control and drainage, water supply and ecological water security. The urban flood control and drainage system is the basis for ensuring the maintenance and benign circulation of water ecosystems. It is necessary to fully consider the coupling effect of urban drainage system and inland river drainage system, and give full play to the role of depression structure in flood storage and peak shaving to improve the safety of urban flood control and drainage system. Urban water supply safety system is produced and lived from urban residents. Considering the stability of urban water ecosystems from the perspective of water safety, it mainly includes residential water safety, industrial water safety, and urban public utilities water safety. The ecological water safety system is a seasonal supplement to the urban water ecosystem safety system. Mainly consider the minimum ecological water demand of the aquatic ecosystem, the minimum ecological flow rate required by the inland river system, etc., to ensure that the water ecosystem of the dry season can maintain a virtuous cycle. These three systems constitute the urban water security system.

To solve the urban water environment problem, we must implement two schemes: pollution source control and polluted water body restoration on the basis of reasonable urban water function zoning. Control source is to ensure the environmental purification of water ecosystem from the perspective of reducing pollutants entering water bodies. It mainly includes industrial point source treatment, domestic sewage treatment, urban primary rain runoff and other non-point source pollutant collection and control. The polluted water body restoration technology can be roughly divided into two categories: ecological engineering measures and bio-engineering measures.

Ecological engineering measures include 3 aspects: chemically, add chemical agents to water bodies, kill algae and other pollutants that are easy to cause eutrophication; use physical methods to reduce pollutants in water by mechanical algae removal, sediment removal, diversion of water, etc. Concentration; application of ecological methods to build ecological bank slopes, restore the natural form of rivers and lakes, to restore a virtuous cycle of aquatic ecosystems. Bioengineering measures can be broadly divided into two categories: one is to plant aquatic plants or to place aquatic organisms, through the ecosystem Regulating ability, gradually returning the water ecosystem to an unbroken state; second, using biological treatment engineering Use, such as biological corridors, biological modules, biological filters, biological contact oxidation, biological aeration and other processes to enhance the purification and recovery capacity of aquatic ecosystems. Bioremediation technology, due to its good treatment effect, low engineering cost, operation Low cost, the source of microorganisms, animals and plants required for water purification is wide and the breeding is rapid. If the dominant flora and species can be selected, the biodegradation of most organic substances can be achieved without secondary pollution, so it is widely used. Water environment treatment project.

The function of urban water ecosystem landscape, in the narrow sense, refers to the shape, area and coastal zone of the water. It visually affects the landscape of the city. The benign circulation of the water in the city is itself a beautiful landscape. The landscape planning of urban waters should be Considering the status quo of the city, development planning and urban positioning, the relationship between urban land use and landscape layout should be coordinated and divided according to different landscape structures of the city. The water economy in the city refers to the existence of “water”. Economic-related matters involving urban water intake, water supply, water use, and urban economic changes brought about by the participation of aquatic ecosystems. Many cities are currently building urban water markets that are suitable for their own economic development models. Establish a reasonable water distribution benefit adjustment mechanism, take property rights reform as a breakthrough, clarify water resources property rights, establish a reasonable water rights allocation and market transaction management model based on the price system and the legal system to protect market operations. At the same time, due to water The participation of the ecosystem has improved the living suitability of the adjacent areas, which in turn has lifted the house. The price of production promotes the development of the industry economy and improves the investment environment of the city. This is also a reflection of the economic value of water. Water culture is an industry culture that reflects the relationship between water and human society, politics, economy and culture. It is a cultural phenomenon created by human beings engaged in water activities with water as the carrier. It is a cultural aggregate with water as the axis in national culture. The construction of water culture in urban water ecosystem should mainly reflect the urban landscape effect. The culture with water as the axis is generally expressed in historical relics, historical figures, myths and legends, and allusions of literati and literati. The water ecosystem in the city has rich cultural connotations and historical heritage, especially in urban planning, especially in cities. When planning water landscapes, special attention should be paid to excavation to form a perfect water landscape system.

4. Conclusion

There are serious problems in the urban river ecosystem, which has caused great pressure on the city in flood control and drainage, ecological water use and water environment quality during the dry season, restricting the sustainable development of the city, destroying the urban landscape and reducing the urban taste. According to water safety The five-in-one model of water environment, water landscape, water culture and water economy. According to the specific characteristics of urban river ecosystems, the construction of urban river ecosystems can solve the key problems of their existence and achieve comprehensive water security and water. The water ecosystem with environmental purification, beautiful water landscape, rich water culture and active water economy provides a solid foundation for the sustainable development of the city's social economy and the beautiful living environment.

References

- [1] Wang Peifang, Wang Chao, Feng Wei, et al. Research progress on urban water ecosystem construction model [J]. Journal of Hohai University (Natural Science Edition), 2003, 31(5) : 485 489.
- [2] Huang Guangyu. Progress in China's eco-city planning and construction [J]. Urban Environment and Urban Ecology, 2001, 14(3): 6 8.
- [3] SCHMITT T G. Integrated storm water management in urban areas [J]. European Water Pollution Control, 1996, 6(3): 14 20.
- [4] Zhang Yongtai. Application of market mechanism in urban water restoration and water environment construction [J]. China Environmental Protection Industry, 2002, (7) : 16 19.
- [5] Wang Peifang, Wang Chao. Calculation model and application of ecological environment water demand in mountain rivers [J]. Journal of Hohai University (Natural Science Edition), 2004, 32 (5) : 500 503.