

Landscape Renovation Design for Liaoning Industrial Site

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Abstract: The purpose of this article is to explore the landscape remodeling and renewal design of industrial sites in Liaoning, in order to realize the sustainable development of economy, society and culture on the basis of protecting its historical culture and ecological environment. In order to achieve this goal, this article has conducted in-depth research from both theoretical and practical levels. On the theoretical level, the related theories of landscape remodeling and renewal are sorted out, and the experience and enlightenment of successful cases are analyzed. On the practical level, through on-the-spot investigation and other methods, the present situation of industrial sites in Liaoning was comprehensively evaluated, and the problems and challenges faced in the process of protection and utilization were revealed. Based on the above research, this article puts forward the design strategy and implementation path of landscape remodeling and renewal of industrial sites in Liaoning, including the principles of protection, innovation and community participation, and constructs a multi-party participation management mechanism and policy support system. These strategies and methods have achieved remarkable results in practice, which not only improved the historical and cultural value and ecological environment quality of Liaoning industrial sites, but also injected new vitality into their sustainable development.

1. Introduction

Liaoning, as an important industrial base in northeast China, has many industrial sites bearing rich historical memories and cultural values [1]. These sites have witnessed the industrial development of Liaoning and even China, and they are important heritages of modern industrial civilization [2]. However, with the passage of time and the adjustment of industrial structure, many industrial sites are facing the risk of being forgotten, destroyed or even disappeared [3]. Therefore, the landscape remodeling and renewal of industrial sites in Liaoning is not only the protection and inheritance of its history and culture, but also an important way to promote the sustainable development of regional economy, society and culture.

The historical and cultural value of Liaoning industrial sites is immeasurable. They record the development process of Liaoning industry from scratch and from small to large, and are the physical witness of the progress of industrial civilization [4]. The factories, equipment and production lines in these sites all contain profound historical and cultural connotations and are spiritual symbols of the industrial age. At the same time, they are also the testimony of the industrious wisdom and hard struggle of Liaoning people, bearing the memories and emotions of several generations [5].

The necessity and urgency of landscape remodeling and renewal can not be ignored. On the one hand, through landscape remodeling and renewal, industrial sites can be endowed with new vitality and functions, making them a new driving force to promote regional economic development [6]. On the other hand, with the acceleration of urbanization and people's pursuit of quality of life, the renovation of industrial sites has also become an important means to enhance the image of the city and improve the living environment of residents [7]. In addition, in the face of the gradual disappearance and destruction of industrial sites, it is urgent to reshape and update the landscape in time. The purpose of this study is to deeply discuss the landscape remodeling and renewal design of

industrial sites in Liaoning, and put forward feasible renewal strategies and design methods through a comprehensive analysis of its history, culture and present situation.

2. Current situation of industrial sites in Liaoning

2.1. The distribution and types of industrial sites

The distribution of industrial sites in Liaoning has distinct geographical characteristics. They are mainly concentrated in Shenyang, Dalian, Anshan and other old industrial base cities, which are important birthplaces of industrial development in Liaoning and even China [8]. In terms of types, Liaoning industrial sites cover many industrial fields such as coal, steel, machinery and chemical industry, forming a rich and diverse industrial heritage community.

The geographical distribution characteristics of Liaoning industrial sites are mainly reflected in its centralization and regionality. On the one hand, most of them are concentrated in old industrial base cities, which have a long history of industrial development and rich industrial heritage; On the other hand, different types of industrial sites often show certain regional distribution characteristics. For example, coal industrial sites are mainly distributed in western Liaoning, while iron and steel industrial sites are relatively concentrated in eastern Liaoning.

2.2. Overview of different types of industrial sites

There are various types of industrial sites in Liaoning with their own characteristics. The site of coal industry is mainly composed of mines, coal yards and miners' living quarters, which records the historical changes of coal mining in Liaoning. The site of iron and steel industry takes blast furnace, steelmaking plant and steel production line as the core elements, showing the glorious course of Liaoning iron and steel industry; The mechanical industry sites include workshops, production lines, mechanical equipment, etc., which witnessed the rise and development of Liaoning's mechanical manufacturing industry. These different types of industrial sites together constitute the rich connotation of Liaoning's industrial heritage.

2.3. Site status assessment

In terms of the current situation of protection and utilization, Liaoning industrial sites have been paid attention to and protected to some extent. Some representative industrial sites have been listed as cultural relics protection units or industrial heritage protection lists, and have been protected and managed accordingly. At the same time, some industrial sites have also been developed into tourist attractions or cultural and creative industrial parks, realizing the organic combination of protection and utilization [9]. However, on the whole, the protection and utilization of industrial sites in Liaoning is still in its infancy, and there are still many problems and challenges.

The problems and challenges faced by the protection and utilization of industrial sites are shown in Figure 1:

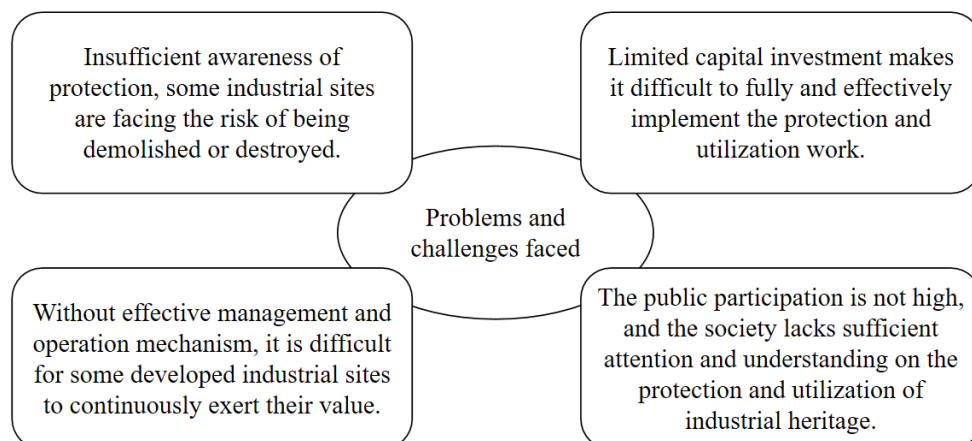


Figure 1 Problems and challenges in the protection and utilization of industrial sites

3. Theoretical and practical basis of landscape remodeling and renewal

As a new mode of heritage protection and development, landscape remodeling and renewal has been widely concerned and applied around the world in recent years.

On the theoretical level, landscape remodeling and renewal involves the intersection and integration of many disciplines. The theory of urban planning and design provides scientific basis for the spatial layout, functional division and landscape design of industrial sites. The theory of cultural heritage protection emphasizes the importance of protecting the historical and cultural value of industrial sites and puts forward the protection principles of authenticity and integrity. The theory of sustainable development requires us to pay attention to the protection of ecological environment, the balance of social economy and the continuation of cultural traditions in the process of renewal.

At the practical level, there have been many successful cases of industrial site renewal. These cases not only protect the industrial heritage, but also endow the site with new vitality and functions through innovative design techniques. For example, Ruhr-gebiet in Germany, Manchester Science Museum in Britain, etc., have achieved effective protection and reuse of industrial heritage through landscape remodeling and renewal. These practical cases provide us with valuable experience and enlightenment, and also provide useful reference for the renewal design of industrial sites in Liaoning.

4. Renovation design strategy of Liaoning industrial site landscape remodeling

Aiming at the landscape remodeling and renewal design of industrial sites in Liaoning, this section puts forward a series of specific design strategies and implementation paths. These strategies aim to protect the historical culture and ecological environment of industrial sites and realize their sustainable economic, social and cultural development.

(1) Clear design principles and objectives. The design principles and objectives are shown in Figure 2.

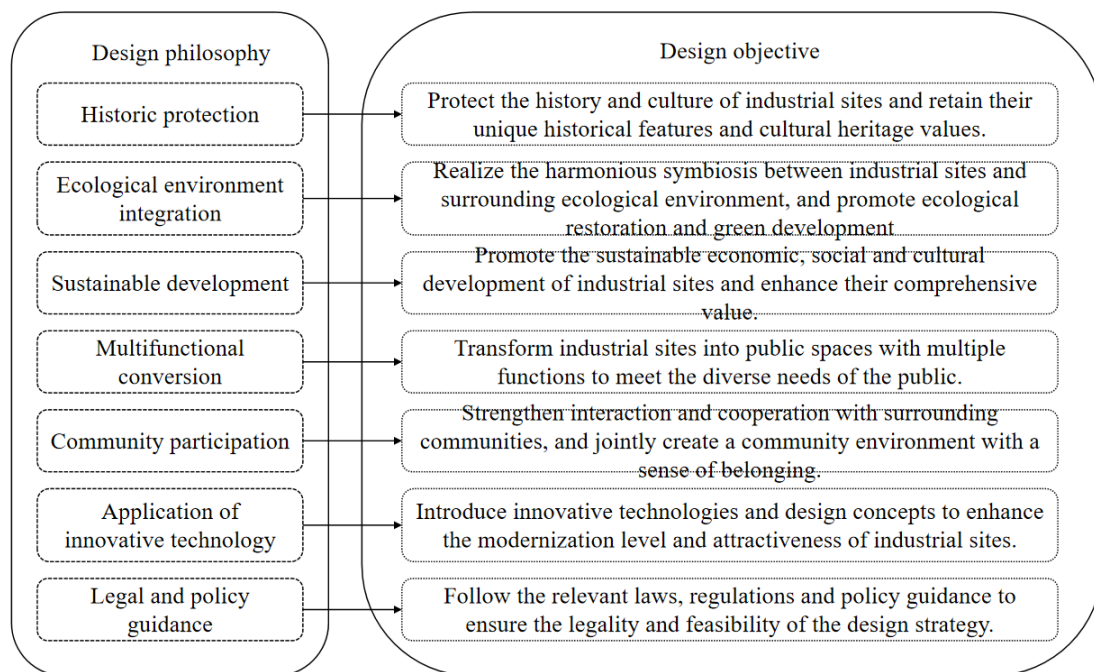


Figure 2 Principles and objectives of landscape remodeling and renewal design of industrial sites in Liaoning

The principle of protection is the first principle, which requires full respect and protection of the historical, cultural and ecological environment of industrial sites in the process of renewal; The principle of innovation encourages innovative design on the basis of protection, giving the site new functions and vitality; The principle of community participation emphasizes that community residents should participate in the renewal process to jointly promote the sustainable development

of the site.

(2) Put forward specific design strategies. In terms of spatial layout and functional division, this article makes reasonable spatial layout and functional division according to the actual situation and surrounding environment of the site to ensure that the renewal of the site is in harmony with the surrounding environment. In the restoration and promotion of ecological environment, attention should be paid to the protection and restoration of ecological environment, and the ecological environment quality of the site should be improved by means of greening and water treatment. In the integration and display of cultural elements, we should fully explore and display the historical and cultural elements of industrial sites, and show the historical and cultural value of the sites to the public through museums, exhibition halls and other forms. In terms of supporting public facilities and services, improve the public facilities and service supporting system of the site, and enhance the attraction and service function of the site.

(3) Put forward the implementation path and management mechanism. On the implementation path, this article adopts the method of phased implementation, which includes protection and restoration in advance and development and utilization later. In the management mechanism, the government, enterprises, communities and other parties should be established to jointly promote the renewal and development of the site. At the same time, this article also pays attention to policy support and fund raising to provide strong guarantee and support for the renewal of the site.

5. Long-term planning suggestions for the protection and utilization of industrial sites

The protection and utilization of industrial sites is a complex and multi-dimensional long-term planning topic, which involves the inheritance of history and culture, urban renewal, economic development and social participation. In order to realize the effective protection and activation of industrial sites, it is necessary to conduct a comprehensive survey and value assessment to ensure the accuracy and integrity of information. At the same time, promote the formulation or improvement of relevant laws and regulations, clarify the definition, classification, protection standards and management mechanism of industrial sites, provide a legal basis for long-term protection, and introduce a series of incentive policies to encourage social capital to participate. In terms of scientific planning and design, it is necessary to formulate the overall protection and development plan according to the characteristics of the site and the surrounding environment, and introduce professional teams in the fields of architectural design and cultural creativity to carry out creative transformation. In addition, multi-functional development and community participation are also the key, transforming industrial sites into multi-functional spaces, promoting the integrated development of culture, art and technology, and strengthening interaction and cooperation with surrounding communities to jointly create a cultural atmosphere with a sense of belonging and identity. In order to realize sustainable operation and management, it is necessary to explore diversified operation modes and establish a perfect maintenance management system. Finally, through publicity, education and international exchanges, we will raise public awareness of the value of industrial heritage, cultivate awareness of protection, and strengthen exchanges and cooperation with the international industrial heritage protection field.

To sum up, the protection and utilization of industrial sites need the joint efforts of the government, enterprises, social organizations and the public to achieve their effective protection and activation through comprehensive strategies, and contribute to the cultural heritage and innovative development of the city.

6. Conclusions

This study focuses on the landscape remodeling and renewal design of Liaoning industrial sites, and makes a comprehensive analysis from both theoretical and practical levels. Through on-the-spot investigation, case analysis, design strategy and other methods, this study systematically studies the historical and cultural values, current problems and renewal design strategies of Liaoning industrial sites, aiming at providing theoretical support and practical guidance for promoting the sustainable

development of Liaoning industrial sites.

The main research results of this study include: first, combing the historical context and cultural characteristics of Liaoning industrial sites, and making a comprehensive and in-depth understanding of them; Secondly, it evaluates the present situation and challenges of the protection and utilization of industrial sites in Liaoning, and reveals the problems and bottlenecks in its development process; Thirdly, the design strategy and implementation path of landscape remodeling and renewal of Liaoning industrial sites are put forward, which provides specific guidance for its practical operation; Fourthly, a multi-party management mechanism and policy support system have been established, which has provided a guarantee for the long-term development of industrial sites in Liaoning.

In the future research, we can pay more attention to the following areas: first, the deep-seated historical and cultural excavation and inheritance research of Liaoning industrial sites; Second, the study on the synergy mechanism of industrial site renewal, urban development and ecological environment protection; Third, community participation and public cognition in the renewal of industrial sites; Fourthly, the assessment of economic, social and cultural benefits after the renewal of industrial sites. The research in these fields will further enrich and improve the theoretical system and practical experience of landscape remodeling and renewal of industrial sites in Liaoning.

References

- [1] Wang Lulu. New ideas for the protection and development of industrial heritage in Liaoning Province under the Internet thinking [J]. Journal of Shenyang University of Technology (Social Science Edition), 2019, 012(004):308-312.
- [2] Zhang Peifeng, Song Yuge, Liu Jun, et al. Analysis of influencing factors of urban three-dimensional architectural landscape [J]. Urban Architecture, 2019,16(31):135-139.
- [3] Yang Ye, Tao Lin, Wang Jia. Study on the countermeasures of landscape transformation of industrial wasteland in Liaoning Province [J]. Building materials and decoration, 2018,(25):61-62.
- [4] Zhao Kejun, Wang Xinying. Study on the Landscape Reconstruction of Industrial Sites under the Background of "Double Renovation of Cities" [J]. Architecture and Budget, 2021, 000(008):137-139.
- [5] Luo Yuting, Yu Xinbo, Ding Ting. Study on organic renewal of industrial wasteland landscape [J]. Industrial Design, 2023(2):101-103.
- [6] Yang Ye, Tao Lin, Wang Jia, et al. Study on landscape renewal of industrial wasteland in the process of urbanization [J]. Liaoning Forestry Science and Technology, 2018,(03):67-69.
- [7] Xiao Luping, Jack Luo. Research on Industrial Landscape Tourism Development in Shenyang [J]. Modern Horticulture, 2020,(04):91-92.
- [8] Yang Qi. Research on Landscape Design in the Reconstruction of Industrial Sites [J]. Intelligent Building and Smart City, 2022(10):165-167.
- [9] Liu Ying. Study on land use and landscape pattern change of a city in Liaoning Province [J]. Beijing Surveying and Mapping, 2019,33(06):696-698.