



The Research on the Application of Landscape Art in Urban Industrial Landscape Reconstruction

Based on the Sustainable Design Methods and Value

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Abstract. With the advent of the post-industrial era, the industrial structure and economic patterns of countries worldwide have undergone tremendous changes. The traditional heavy industry has been dramatically impacted, migrating from the city to the outside, and many land resources in urban areas have been abandoned and idle. This not only leads to the waste of resources and energy but also restricts the city's development. Landscape art is created in nature and plays a significant role in improving the quality of the landscape while also repairing the damaged surface of industrial wasteland. It can combine ecological restoration and artistic landscape design of industrial land, and is a practical design method for industrial land to restore its urban functions. Based on literature analysis and case studies of relevant studies, this article adopts an interdisciplinary perspective and cross-research methods, taking landscape art in industrial landscape transformation as the research object, exploring a new view of landscape art-based design, analyzing sustainable design methods for landscape art in industrial wasteland landscape use, and reaching a conclusion that “maintaining the authenticity of industrial sites”, “using artificial and natural expression methods”, “using abstract formal language” and “integrating temporal and spatial factors into art” as well as the cultural, economic, and social values of landscape art in the regeneration design of industrial wasteland. The use of artistic means to restore industrial wasteland to its urban functions and assume social responsibility will play an essential role in urban history and culture, social development, and economic benefits.

Keywords: Landscape Art · Urban Industry · Landscape Reconstruction · Design Methods · Value

1 Introduction

Landscape art, also known as “earth art” or “earthworks”, originated in Europe and the United States in the 1960s. Influenced by minimalism, conceptual art, and process art, it abandoned traditional painting models, freed itself from the spatial constraints of museums and studios, and the artistic concept of creating themes with people, and reinterpreted the artist's understanding of art and nature in a primitive and simple form

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on the earth. Early landscape art refers to an art form that takes natural environments such as mountains, deserts, plains, even storms, lightning, sun, moon, and stars as the background, and uses raw materials such as rocks, volcanoes, and other formations on the surface of the earth as the carrier for creation. Later artists found that artificial traces caused by human production activities (such as industrial wasteland) are also suitable for landscape art creation forms, and the sense of desolation of the land after the decline of industrial civilization is very consistent with the idea of landscape art [1].

Urban renewal and industrial restructuring have led to the forced suspension or relocation of traditional industries, and many industrial lands has become brown land left over by the city. These industrial lands that no longer have urban production functions are considered a burden on the city [2]. Urban industrial wasteland is an inevitable product of urban development, and its landscape transformation is an important issue that needs to be addressed in urban development [3]. In the creating of landscape art, emphasis is placed on minimal interference with the site without damaging the industrial landscape. Utilizing existing resources, it precisely displays the unique spatial structure and material attributes of the site [4]. Art lives based on the environment and has a reshaping and beautifying effect on the territory of industrial wasteland. Integrating landscape art into landscape transformation not only preserves the original industrial style but also has artistic importance, opening up a new path for protecting and reusing the residual effect and value of industrial wasteland. This article will focus on introducing the four methods of landscape art design: “authenticity”, “artificial and natural”, “abstract formal language” and “space-time factors” as well as the cultural, social, and economic value of landscape art in industrial landscape regeneration design.

2 Landscape Art Design Methods in Urban Industrial Landscape Reconstruction

As a carrier of history, abandoned industrial land carries the cultural characteristics of industrial buildings in different eras and regions [2]. Landscape art emphasizes adjusting measures to local conditions and using materials locally, which precisely reflects the unique cultural characteristics of the site. Therefore, the author believes that in the creation, the design concept of “authenticity” should be followed, and “authenticity” should maximize the use of existing resources, and on this basis, the artistic characteristics of landscape art should be displayed. For example, using artificial materials or natural elements as creative materials, and using abstract formal language such as landscape art prototype methods to refine and summarize innovative materials. In the transformation of urban industrial landscapes, special attention needs to be paid to integrating temporal and spatial factors into artistic creation. Landscape restoration is a long process. The characteristics of landscape artworks that disappear with the passage of time are organically combined with restoration work to play a transitional role in the landscape [1]. Although landscape design and landscape art belong to different fields, they overlap on quite several levels, complementing landscape design to some extent [5], from this, it can be seen that when transforming urban industrial landscapes, landscape art can provide unique aesthetic value for the landscape transformation of urban industrial wasteland based on regional and artistic characteristics. At the same time, landscape art’s pursuit

of a harmonious relationship between humans and nature pushes industrial landscape design toward a more scientific and reasonable development direction.

“Authenticity” is the core concept of cultural heritage protection theory. From the perspective of world cultural heritage protection, all industrial relics belong to cultural heritage [6]. Based on this perspective, the author believes that “authenticity” can also be applied to the ecological restoration, design, and transformation of industrial relics. Industrial heritage is a witness of history and culture, recording the political, cultural, and economic development of an era. The mottled traces left by traditional heavy industries such as mining areas, quarries, and foundries are important historical, cultural, and social relics during the Industrial Revolution [7]. At the same time, these traces also exist, like sculptures, allowing people to re-examine the relationship between human beings and nature through the site itself. Therefore, in industrial landscape design, it is necessary to maximize the “authenticity” of industrial relics. For example, the creation of Shanghai Chenshan Mine Garden (as Fig. 1 shown) was designed by Professor Zhu Yufan of Tsinghua University. The original site of the mining pit belongs to a century-old artificial mining heritage. During the design, the artist transformed the existing deep pool, pit body, footprint, and cliff, designed waterfalls, plank roads, water curtain cave, and other content closely combined with the natural terrain [8], and conducted minimal intervention on the site to deepen people’s understanding of nature. The design of the mine garden fully demonstrates the mining culture with a long history. Based on maintaining “authenticity”, the invention uses the combination of “artificial” and “natural” means of expression of landscape art to form a natural landscape.

There are two primary means of expression in landscape art: “artificial” and “natural”. Artificial works of art are composed of synthetic materials and devices. These types of jobs emphasize the artistic creation itself and convey the artist’s attitude towards art and social thinking through the work [4]. For example, the expressive force of the word “Wrapping the Capitol” by landscape artist Cristo is displayed through artificial materials, wrapping the majesty and solemnity in the ethereal silver fabric, allowing the initially complex architecture to return to the most basic and abstract original physical



Fig. 1. Shanghai Chenshan Mine Pit Garden (from: https://kns.cnki.net/kcms2/article/abstract?v=5faiAHckh4wL2GDtwT4LFxV0VSt3U60Av4Ide-58cZKMWFFKjY_yNFtDg7GSGqTTcUCwLqs9puXWL3yLd98UBkmY7hNQvEg9X6BAV1ahQJn86v3YdpsZFL0n7uXQ8QbW&uniplatform=NZKPT&language=CHS)

appearance. The “artificial” form of artistic creation allows the original familiar objective conditions to be wrapped in a strange state, exploring the fuzzy boundaries between society and art, people and culture, and community and nature from a new perspective, providing a fresh design perspective in industrial landscape design. Natural landscape art is mainly based on the original materials of nature as the creative material, integrating nature and art, making the communication between people and nature more direct. From the perspective of the applicable principles of landscape transformation, the “natural style” applies the principle of inheritance and symbiosis, focusing on integration with the natural environment, achieving maximum utilization of existing resources and minimal environment disruption. People are only a tiny part of their creations, and more importantly, they follow the evolution laws of nature. Artist Ross has always wanted to be able to turn “light” into a record. The “Constellation Astrogram”, created in 1974, was realizing his dream. His way of observing the movement of the sun was different because the direction was reversed, resulting in a shape similar to the Arabic numeral “8”. This abstract double spiral shape is an infinity symbol that appears in the Astrogram and represents the structure of solar activity [9].

Abstract creative language is the prototype creation method of landscape art [10]. In his book “Abstraction and Empathy”, Wallinger studied abstract impulses from the perspective of social psychology. He believed that abstract impulses were the extraction of individual things in the external world by primitive peoples from the ever-changing happenings and the use of abstract forms to perpetuate them [11]. Abstraction is the most important creative language of landscape art. Landscape artists extract essential features from many things, attempting to awaken people’s deep subconscious and arouse people’s psychological resonance in the most primitive language form [12]. Influenced by minimalism, landscape art often uses simple basic geometric shapes such as points, lines, spirals, and cones, believing that abstract “prototypes” can be read through “group unconsciousness” and evoke people’s collective memory [13]. Just like the American landscape artist Smithsonian’s “Spiral Breakwater”, the work spirals deep into the lake. In this work, the artist uses modern tools to pile up raw materials in nature into spiral geometric shapes with a sense of motion, making them resemble symbols that carry history and culture. At the same time, the works contain artificial traces and primitive traces of nature, conveying a mysterious and primitive vitality reminiscent of the changes in the relationship between humans and wildlife in the process of industrial development, reflecting the development process of human society confronting and coexisting with nature in the development process, as well as the temporal characteristics that are important manifestations of landscape art in this process.

Landscape art is a multidimensional form of artistic space [1]. Emphasize the experience of the process, which is not only in three-dimensional space but also in the fourth dimension of time. The “instantaneity” and “continuity” of expressing time processes are the creative themes of most landscape artists [10]. Artists use art itself to explore time and space. Instead of creating with simple natural elements, they engage art itself in the movement of nature. Artist Robert Morris has long noticed the issue of space-time experience. He believes that understanding works requires multiple perspectives, and this experience is based on an understandable and comprehensive pattern of phenomena [9]. In 1963, his work “Fountain” showed a process of hanging an empty bucket and



Fig. 2. Lightning Fields ([https://doi.org/10.3963/j.issn.2095-0705.2014.03.001\(0001-05\)](https://doi.org/10.3963/j.issn.2095-0705.2014.03.001(0001-05)))

flowing water inside it, which is a process of time change. De Maria's "Lightning Field" (as Fig. 2 shown) uses 400 stainless steel rods in a rectangular arrangement on the land of New Mexico. During the lightning season, steel poles are like electrodes in the field, connecting lightning and acting as a bridge between heaven and earth. This kind of work is "instantaneous" and disappears with the passing of lightning movement, reflecting the process of time movement. There are various forms of the concept of time in landscape art, and integrating the concept of time into creation can enrich the connotation of artistic works [14]. For example, Richard Lang's walking art shows the continuous process of time through the linear lines presented by the walking action itself. Integrating the factors of time and space into artistic creation will make the final presentation of landscape art more meaningful.

In contemporary society, sustainable design requires a stronger sense of social responsibility. Compared to the previous emphasis on restoring the ecological environment, balancing social benefits is also a key point [12]. Restoring the ecological environment of industrial wasteland is a long process. The involvement of landscape art not only restores the atmosphere of the urban fringe but also reshapes its cultural, social, and economic values.

3 The Value Embodiment of Landscape Art in the Regeneration of Industrial Waste Land

The regenerative value of landscape art in urban industrial landscape design is first reflected at the historical and cultural level. Based on the perspective of industrial culture, some countries and regions have re-examined and evaluated the value of industrial relics as witnesses of the development of the times and historical monuments [15]. The

cultural relationships and characteristics presented by industrial relics are formed and displayed under specific spatial patterns [16]. These urban industrial sites witness the historical process of a city and region, representing the continuation and inheritance of urban civilization. The preservation and transformation of some of the equipment, plant areas, machinery, etc., in these industrial sites precisely preserve their cultural value as historical relics. The regeneration design of Qinhuangdao Xigang Garden does not destroy the original structure and landscape framework of the site but retains some characteristic and well-preserved abandoned ports in the original site as landscape elements for transformation and reuse. Xigang Garden reflects the historical traces of the port industry everywhere by retaining industrial relics. It forms a sharp contrast with the original site by appropriately integrating modern landscape art design techniques, better displaying the historical and cultural value of industrial relics and continuing the memory and spirit of the place [17]. The transformation and reuse of industrial landscapes have become a common social consensus. These industrial wastelands with development potential, such as factories and mining areas, which have withdrawn from the business field due to the adjustment of the urban industrial structure, have been and will continue to include deep historical processes and the evolution of human activities.

Secondly, the economic value of regenerative design is reflected. Most industrial wasteland areas have experienced economic decline from the industrial era to the post-industrial era. Revitalizing the economic vitality of these areas is the core goal of industrial landscape transformation and reuse [12]. Industrial landscape transformation can transform barren land into an urban landscape. From the perspective of the industrial wasteland itself, recycling the remaining landscape elements within site can reduce the economic investment in transforming the ecological environment of the wasteland. Environmental improvement also brings new opportunities for regional economic development, promoting industrial structure adjustment and upgrading [18]. In addition, using landscape art design methods to transform it from abandoned land into a unique post-industrial landscape, improving the city's image, and achieving significant economic benefits in the later stages. Nowadays, young people are increasingly fond of industrial and cultural-themed tourism routes, and industrial tourism is likely to become one of the driving forces of urban tourism in the future [13]. For example, one of the most important projects in Germany's Emscher Park is Duisburg North Scenic Park. When abandoned industrial buildings are transformed into different venues for activities, such as concerts, dramas, exhibitions, hotels, and other leisure and entertainment facilities, as well as through a series of measures such as attracting investment and restructuring enterprises, the regional economic vitality is restored [19]. The Emscher Park project has completely changed the urban image of Ruhr, Germany. The development of a city requires not only a good material foundation and social environment but also sustainable economic prosperity. The transformation and utilization of industrial wasteland aim to renew its vitality after completing its mission at a historical stage, drive the economic development of the surrounding areas through its own economic cycle development, and achieve the revitalization of the entire region.

In terms of social value, urban industrial wasteland leads to a large amount of waste of land resources. As China's population grows, land resources become increasingly scarce [13]. In today's land resource shortage, industrial land is a unique existence in

cities, which can be either a piece of abandoned land or a valuable land resource. Further excavation and effective utilization of urban industrial wasteland are one of crucial ways to alleviate the tension in urban land use [13]. Therefore, at present, it is even more necessary to conduct new development and reuse of these industrial wastelands in urban fringe areas to reshape their social value. Landscape art has multiple artistic forms. Artists pay attention to ecological protection in their creations, bringing the thinking of the relationship between human beings and nature into landscape design, causing people to think about character. Landscape art is an art that takes the land as the object of creation, with prosperous site utilization. By constantly broadening the boundaries of art, it can meet the needs of landscape transformation in different industrial areas. In the internal design of Duisburg, designers have redesigned many old buildings to restore the ecological environment of the region while adding new residential areas and civic centers to the industrial wasteland, attracting residents to live in, and adding cultural and recreational venues to provide high-quality living assurance for citizens. Landscape art offers a new perspective on landscape design methods for society and has made practical contributions to urban development based on an artistic perspective. From a macro perspective, it will also have the same value for China's current rural landscape construction, reaching the goal of rural revitalization.

4 Conclusion

Urban industrial landscape renovation design is a systematic work. This article uses an interdisciplinary perspective to explore the design and renovation of abandoned industrial land, analyzes the design methods used by landscape art in the landscape renovation of industrial wasteland, and expounds on the value of artistic intervention for urban industrial wasteland. Landscape art has a broad cognitive foundation in China, and its multiform design language can solve the problems faced in the transforming of urban industrial landscapes in China. In the design, attention should be paid to the artificial traces and natural environment of abandoned land, following the evolution laws of nature and displaying its unique artistic personality, which can turn industrial land into a creative landscape that can be appreciated and participated in. This article explores the use of four creative factors, namely "authenticity", "artificial and natural", "abstract artistic language", and "time and space", in landscape art to incorporate regenerative design methods, coordinate planning, rationally utilize, protect the characteristics of the original site, rediscover its inherent cultural value, and achieve multiple transfers of social and economic benefits. Urban industrial wasteland has various significance. The involvement of landscape art in the landscape design and transformation of industrial wasteland can effectively excavate the historical and cultural value and aesthetic value of the site and restore the ecological cycle of the industrial wasteland. Regarding the limitations of this article, the author only explores the transformation of industrial landscapes from the perspective of artistic design, lacking the depth of intersection with other disciplines and analyzing other influencing factors. The researcher hope that future scholars can pay more attention to the characteristics of different disciplines when landscape art is involved in the transforming of industrial wasteland and provide suggestions for the sustainable development of urban industrial landscapes in combination with field surveys.

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